

# **SUPPLEMENTAL SPECIFICATIONS SPECIAL PROVISIONS**

CSI - METRIC

**Project No:** SP-0006(29)229

**Name:** SR-6; PRICE TO WELLINGTON

RECONSTRUCTION

**County:** CARBON

**Bid Opening:** July 29, 2003

Date

## **MANDATORY PRE-BID CONFERENCE**

Date: July 14, 2003

Time: 10:00 am

Location: UDOT Price District Office  
940 South Carbon Ave  
Price, Utah  
Phone No. 435-636-1470

**Conference attendance is a requirement for bid submission.**



**1999 CSI - Metric**  
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\* This Specification is needed on *all* jobs.

	<b>Supplemental Specifications:</b>					
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	04/11/00				03310M	Structural Concrete
	01/09/01				03390M	Concrete Curing

\* This Specification is needed on *all* jobs.

<b>Special Provisions:</b>						
U	Date	Sheet No.			Section	Item
	10/09/02				00555M	Prosecution and Progress
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	11/16/01				02771M	Curbs, Gutters, Driveways, Disabled Pedestrian Ramps, and Plowable End Sections
	10/09/01				02822M	Right-of-Way Fence and Gates
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	11/16/01				02932M	Trees, Shrubs, and Groundcovers
	11/16/01				02936M	Vegetation Establishment Period
	10/09/02				02961M	Rotomilling
	09/12/01				03310M	Structural Concrete
						1. Equal Opportunity ( <b>State Projects</b> )

U	Sheet No.			PDBS Project Summary Report
		to		PDBS Project Summary of Items
				PDBS Detailed Stationing Summaries Report

\* This Specification is needed on **all** jobs.

<b>Materials Minimum Sampling and Testing Manual (Contained in 1999 CSI Spec Book):</b>			
<b>U</b>	<b>Date</b>	<b>Change Number</b>	<b>Applicable Section(s)</b>
	09/12/00	1	02746 (Hydrated Lime, page 46) and 05120 (Structural Steel, page 88)
	02/13/01	2	02745 (Asphalt Material, page 45) and 03055 (Portland Cement Concrete, continued, page 102)
	05/08/01	3	02610 (Pipe Culverts, page 10 - 12)
	1/08/02	4	Modified Quality Management Plan, Asphalt Binder 509

\* This Specification is needed on ***all*** jobs.

## MEASUREMENT AND PAYMENT

The Department will measure and pay for each bid item as detailed in this section.  
Payment is contingent upon acceptance by the Department.

Items are listed by Specification and in tables as follows:

### Section XXXXX: Section Name

Item #	Bid item number	Bid Item Name	Unit of measurement and payment
Additional information goes here.			

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### Section 01285: Mobilization

1	012850010	Mobilization	Lump sum
	Payment	Amount Paid	When Paid
	First	The lesser of 25% of mobilization or 2.5% of contract	With first estimate
	Second	The lesser of 25% of mobilization or 2.5% of contract	With estimate following completion of 5% of contract
	Third	The lesser of 25% of mobilization or 2.5% of contract	With estimate following completion of 10% of contract
	Fourth	The lesser of 25% of mobilization or 2.5% of contract	With estimate following completion of 20% of contract
	Final	Amount bid in excess of 10% of contract price.	Upon substantial completion

### Section 01315: Public Information Services

2	013150010	Public Information Services	Lump Sum
A. Includes compensation for:			
1. All fliers, public information office, telephone lines, and all other labor and materials required to complete the item.			
2. All costs for materials, installation, maintenance, and removal of the public information services signs.			
B. The ENGINEER will monitor the PIM and all public information services.			
1. When the CONTRACTOR provides acceptable public information services in accordance with these specifications, partial payments for the pay item "Public Information Services" will be made as the work progresses.			
2. Failure to provide acceptable public information services will result in withholding of payment for this item.			
3. Partial payments made as follows:			
% of Original Contract Earned		% of amount bid item	
5		25	
10		40 less all previous payments	
25		50 less all previous payments	
75		75 less all previous payments	
100		100 less all previous payments	
C. The term "original Contract amount" as used above means the amount bid for the construction items on this Contract, not including the amounts bid for Public Information Services and Mobilization.			

## Section 01554: Traffic Control

<b>3</b>	<b>015540005</b>	<b>Traffic Control</b>	<b>Lump sum:</b>
D. Partial Payment: Based on the percentage of the project completed, excluding the cost of the traffic control.			

## Section 01561: Temporary Environmental Fence

<b>4</b>	<b>015610010</b>	<b>Environmental Fence</b>	<b>Meter</b>	<b>In Place</b>
E. Partial Payment: Based on the percentage of the project completed, excluding the cost of the traffic control.				

## Section 01571: Temporary Environmental Control

<b>5</b>	<b>015710010</b>	<b>Check Dam (Straw or Hay Bale)</b>	<b>Meter</b>	<b>Of check dam constructed</b>
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<b>6</b>	<b>015710030</b>	<b>Silt Fence</b>	<b>Meter</b>	<b>In place</b>
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<b>7</b>	<b>015710070</b>	<b>Drop-inlet Barriers (Silt Fence)</b>	<b>Meter</b>	<b>Along the silt fence, in place</b>
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8	015710080	Sediment Trap	Cubic meter	Of material excavated
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9	01571011*	Temporary Erosion Control (Contingent Sum)	Lump Sum:
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## Section 01572: Dust Control and Watering

10	015720010	Dust Control and Watering	Kiloliter
A. Reapply water at no additional cost to the DEPARTMENT when material containing natural or applied water is allowed to dry due to the CONTRACTOR's inattention or neglect.			
B. The DEPARTMENT will not pay separately for furnishing or applying water used in:			
1. Hot plant wet collectors.			
2. Areas around all HMA and PCC plants, pits, and crusher operations.			
3. Roads used to haul materials to and from project site.			
4. Rotomilling, sawing, or grinding operations.			
5. Maintaining plant life.			
6. Lean concrete base and portland cement concrete pavement.			
7. Aggregate washing.			
8. Wetting foundations before concrete work.			
9. Concrete curing.			
10. Other items of work for which water is specified as incidental to and included in payment.			

## Section 01721: Survey

11	017210010	Survey (Specialty Item)	Lump sum
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## Section 01891: Move Street Signs and Mail Box Assemblies

12	018910030	Mailbox Assembly	Each	In place
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## Section 01892: Reconstruct Catch Basin, Cleanout, Meter, Valve, Manhole and Monument Boxes

13	018920050	Reconstruct Manhole	Each	In place
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## Section 02056: Common Fill

14	02056001P	Granular Borrow	Cubic Meter	Neat Line in Final Position
In original position based on average end area. Refer to Section 01280 "Measurement."				

## Section 02075: Geotextiles



15	020750020	Geotextiles, Erosion Control	Square meter	In place
DEPARTMENT will not pay for overlaps.				

## Section 02221: Remove Structure and Obstruction

16	022210030	Remove Catch Basin	Each	Removed
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17	022210040	Remove Cleanout Box	Each	Removed
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18	022210050	Remove Tree	Each	Removed
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Refer to Standard Specification 02221, PART 3, paragraph: Tree Removal.				
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19	022210075	Remove Guardrail	Meter	Including end section and anchorages
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20	022210080	Remove Fence	Meter	Removed
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21	022210095	Remove Pipe Culvert	Meter	
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22	02221010*	Remove Mailbox	Each	Removed
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23	02221011*	Remove Right-of-Way Markers	Each	Removed
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24	02221012*	Remove Wall	Meter	Removed
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## Section 02222: Site Demolition - Pavement

25	022220005	Remove Concrete Sidewalk	Square meter	
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Area of steps will be based on the area of the horizontal projection.				
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26	022220010	Remove Concrete Driveway	Square meter	
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27	022220020	Remove Concrete Curb and Gutter	Meter
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28	022220040	Remove Asphalt Pavement	Square Meter
<p>Regardless of the depth or number of courses encountered.</p> <p>A. Do not measure discontinued roads within the limits of the new roadbed or roads that are disturbed in performing other items of work.</p> <p>B. DEPARTMENT will pay for material placed to cover pavements or fill depressions under "Roadway Excavation," or "Borrow."</p> <p>C. DEPARTMENT will pay for concrete curb and concrete curb and gutter integral to the concrete pavement to be removed under "Remove Concrete Pavement."</p>			

## Section 02231: Site Clearing and Grubbing

29	022310010	Clearing and Grubbing	Lump sum
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## Section 02316: Roadway Excavation

30	023160020	Roadway Excavation (Plan Quantity)	Cubic meter
<p>A. Plan quantity, in original position, computed by the method of average end areas.</p> <p>B. Department will authorize cross sections or modifications including excavation below subgrade, unstable slopes, unpreventable slides and terracing.</p> <p>C. DEPARTMENT will not measure or pay for excavation in excess of that authorized.</p> <p>D. The DEPARTMENT will pay for re-handing or additional haul when it is directed in writing as "Extra Work."</p>			

## Section 02318: Ditch Excavation

31	023180010	Small Ditch Excavation	Cubic meter
Department will not pay for excavation beyond the cross-section shown on the plans.			

## Section 02373: Riprap

32	023730010	Loose Riprap	Cubic Meter	In place
Computed using the in-place surface area and specified thickness.				

## Section 02610: Pipe Culverts

33	02610000*	Plug Pipe	Each
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34	026100004	450 mm Pipe Culvert, Class A	Meter
Measured parallel to the center line from barrel end to barrel end, in place.			
35	026100006	600 mm Pipe Culvert, Class A	Meter
Measured parallel to the center line from barrel end to barrel end, in place.			
36	026100048	600 mm Corrugated Steel Pipe Culvert, Class A	Meter
Measured parallel to the center line from barrel end to barrel end, in place.			
37	026100052	900 mm Corrugated Steel Pipe Culvert, Class A	Meter
Measured parallel to the center line from barrel end to barrel end, in place.			
38	02610009*	1800 mm X 1200 mm Corrugated Steel Pipe Arch Culvert, Class A	Meter
Measured parallel to the center line from barrel end to barrel end, in place.			
39	026100170	600 mm Smooth Lined Pipe Culvert, Class A	Meter
Measured parallel to the center line from barrel end to barrel end, in place.			
40	026100414	600 mm Reinforced Concrete Pipe Culvert, Class B	Meter
Measured parallel to the center line from barrel end to barrel end, in place.			
41	026100418	900 mm Reinforced Concrete Pipe Culvert, Class B	Meter
Measured parallel to the center line from barrel end to barrel end, in place.			

## Section 02613: Culvert End Sections

42	026130030	Culvert End Sections 450 mm	Each	In place
43	026130040	Culvert End Sections 600 mm	Each	In place
44	026130060	Culvert End Sections 900 mm	Each	In place

## Section 02614: Salvage and/or Relay Pipe Culvert and End Sections

45	026140040	Salvage and Relay Culvert End Section	Each	In place
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## Section 02635: Grates, Solid Covers, Frames, and Manhole Steps

46	026350035	Rectangular Grate and Frame, (Standard Grating), Std Dwg 1703	Each	In place
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47	026350040	Rectangular Grate and Frame, (Bicycle Safe Grating), Std Dwg 1703	Each	In place
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## Section 02705: Pavement Sawing

48	027050010	Asphalt Pavement Sawing	Millimeter-Meter
Measurement: Average depth in millimeters times length in meters. Payment: When no depth is shown, payment will be based on a depth of 150 mm. If the average depth exceeds the plan depth by 50 mm or more, the unit price will increase by 20 percent.			

## Section 02721: Untreated Base Course (UTBC)

49	02721007P	Untreated Base Course 19 mm or 25 mm Max	Cubic Meter	Neat Line in Final Position
<b>Price Adjustments - Density:</b>				
<b>Pay Factor Per Lot</b>		<b>% of Maximum Laboratory Density</b>		
1.00		\$ 97		
0.90		94 # Density < 97		
<b>Price Adjustments - Gradation:</b>				
A. Based upon subplot size and the minimum pay factor.				
B. Pay factors for noncomplying aggregate gradation when tested in accordance with AASHTO T 27 are indicated in Table 02721-1.				
C. If the Mean of the Deviations of test results vary from the Combined Aggregate Target more than the minimum shown under the 0.70 pay factors of Table 02721-1, the pay factor for material allowed to remain is 0.50. This applies only if ENGINEER does not order correction or removal of any or all of the material represented by the tests.				

**Table 02721-1 Pay Factors for Noncomplying Aggregate Gradation**

<b>Mean of The Deviations of Sieve Gradation Results From The Combined Aggregate Target - Expressed in Percentage Points</b>						
<b>SIEVE SIZES</b>	<b>Pay Factor</b>	<b>1 TEST Max-min</b>	<b>2 TESTS Max-Min</b>	<b>3 TESTS Max-Min</b>	<b>4 TESTS Max-Min</b>	<b>5 TESTS or More Max - Min</b>
<b>12.5 mm and larger</b>	<b>1.00</b>	0 - 15	0.0 - 12.1	0.0 - 10.8	0.0 - 10.0	0.0 - 9.5
	<b>0.95</b>	16 - 17	12.2 - 13.9	10.9 - 12.4	10.1 - 11.5	9.6 - 11.0
	<b>0.90</b>	18 - 19	14.0 - 15.1	12.5 - 13.5	11.6 - 12.5	11.1 - 11.9
	<b>0.80</b>	20 - 21	15.2 - 17.2	13.6 - 15.3	12.6 - 14.2	12.0 - 13.5
	<b>0.70</b>	22 - 23	17.3 - 18.8	15.4 - 16.7	14.3 - 15.5	13.6 - 14.7
<b>9.5 mm</b>	<b>1.00</b>	0 - 15	0.0 - 11.5	0.0 - 9.8	0.0 - 8.8	0.0 - 8.0
	<b>0.95</b>	16 - 17	11.6 - 13.3	9.9 - 11.3	8.9 - 10.1	8.1 - 9.2
	<b>0.90</b>	18 - 19	13.3 - 14.4	11.4 - 12.3	10.2 - 11.0	9.3 - 10.0
	<b>0.80</b>	20 - 21	14.5 - 16.3	12.4 - 13.9	11.1 - 12.5	10.1 - 11.4
	<b>0.70</b>	22 - 23	16.4 - 17.9	14.0 - 15.2	12.6 - 13.6	11.5 - 12.4
<b>4.75 mm</b>	<b>1.00</b>	0 - 14	0.0 - 10.5	0.0 - 8.8	0.0 - 7.8	0.0 - 7.0
	<b>0.95</b>	15 - 17	10.6 - 12.1	8.9 - 10.1	7.9 - 9.0	7.1 - 8.0
	<b>0.90</b>	18	12.2 - 13.1	10.2 - 11.0	9.1 - 9.8	8.1 - 8.7
	<b>0.80</b>	19 - 20	13.2 - 14.9	11.1 - 12.5	9.9 - 11.1	8.8 - 10.0
	<b>0.70</b>	21 - 22	15.0 - 16.3	12.6 - 13.6	11.2 - 12.1	10.1 - 10.8
<b>1.18 mm</b>	<b>1.00</b>	0 - 11	0.0 - 8.2	0.0 - 6.9	0.0 - 6.2	0.0 - 5.6
	<b>0.95</b>	12 - 13	8.3 - 9.4	7.0 - 7.9	6.3 - 7.1	5.7 - 6.4
	<b>0.90</b>	14	9.5 - 10.3	8.0 - 8.6	7.2 - 7.8	6.5 - 7.0
	<b>0.80</b>	15 - 16	10.4 - 11.6	8.7 - 9.8	7.9 - 8.8	7.1 - 8.0
	<b>0.70</b>	17	11.7 - 12.7	9.9 - 10.7	11.7 - 12.7	8.1 - 8.7
<b>300 Fm</b>	<b>1.00</b>	0 - 9	0.0 - 7.0	0.0 - 6.1	0.0 - 5.5	0.0 - 5.2
	<b>0.95</b>	10	7.1 - 9.0	6.2 - 7.0	5.6 - 6.3	5.3 - 6.0
	<b>0.90</b>	11	9.1 - 8.8	7.1 - 7.6	6.4 - 6.9	6.1 - 6.5
	<b>0.80</b>	12 - 13	8.9 - 10.0	7.7 - 8.7	7.0 - 7.8	6.6 - 7.4
	<b>0.70</b>	14	10.1 - 10.9	8.8 - 9.5	7.9 - 8.5	7.5 - 8.1
<b>75 Fm</b>	<b>1.00</b>	0 - 4.5	0.0 - 3.4	0.0 - 2.9	0.0 - 2.5	0.0 - 2.3
	<b>0.95</b>	4.6 - 5.2	3.5 - 3.9	3.0 - 3.3	2.6 - 2.9	2.4 - 2.6
	<b>0.90</b>	5.3 - 5.6	4.0 - 4.3	3.4 - 3.6	3.0 - 3.1	2.7 - 2.9
	<b>0.80</b>	5.7 - 6.4	4.4 - 4.8	3.7 - 4.1	3.2 - 3.6	3.0 - 3.3
	<b>0.70</b>	6.5 - 7.0	4.9 - 5.3	4.2 - 4.5	3.7 - 3.9	3.5 - 3.6

## Section 02741: HMA (Hot Mix Asphalt)

50	027410020	HMA - 19.0 mm	Megagram
Includes aggregates, asphalt binder, hydrated lime, other additives, etc. The Department will not pay separately for asphalt binder, hydrated lime, additives, etc.			

## Section 02748: Prime Coat/Tack Coat

51	027480030	Emulsified Asphalt SS-1	Megagram
Do not measure water added in excess of the specified amount in Standard Specification 02745.			

## Section 02749: Asphalt Driveway

52	027490010	Asphalt Concrete Driveway	Each
The Department will pay for untreated base course under Section 02721, and Hot Mix Asphalt under the appropriate section.			

## Section 02765: Pavement Marking Paint

53	027650005	Traffic Striping Paint	Liter	In place
<b>Payment:</b> A. The Department will not pay for removal of unauthorized, smeared, or damaged markings. B. Price reduction for paint application rate:				
<b>Rate</b>		<b>Pay Factor</b>		
At the specified rate		1.0		
1-10 percent below the specified rate		0.75		
11-15 percent below the specified rate		0.50		
More than 15 percent below the specified rate		May be accepted at 0.40 percent or required to be repainted.		

54	027650020	Pavement Message Paint	Each	In place
<b>Measurement - Painted Pavement Messages:</b> A. Letter = one message. B. Arrow = one message. C. Multi-headed arrow = one message per arrow. D. School crossbars = one message per 600 mm x 3 m bar. E. Crosswalk = two message per lane and two messages per shoulder. F. Stop Bar = one message per lane and one message per shoulder. G. Railroad crossing markings = seven messages per lane. 1. 'R' = one message each (two required). 2. 'X' = two messages. 3. Transverse Bar = one message each (two required). 4. Stop Bar = one message.				
<b>Payment:</b> A. The Department will not pay for removal of unauthorized, smeared, or damaged markings. B. Price reduction for paint application rate:				
<b>Rate</b>		<b>Pay Factor</b>		
At the specified rate		1.0		
1-10 percent below the specified rate		0.75		
11-15 percent below the specified rate		0.50		
More than 15 percent below the specified rate		May be accepted at 0.40 percent or required to be repainted.		

## Section 02771: Curbs, Gutters, Driveways, Disabled Pedestrian Ramps, and Plowable End Sections

55	02771011*	Concrete Waterway	Square Meter	In place												
<b>Price Adjustments for Strength</b> A. When concrete is below specified strength: 1. DEPARTMENT may accept item at a reduced price 2. The pay factor will be applied to the portion of the item which is represented by the strength tests that fall below specified strength. 3. Department will calculate the pay factor as follows: <table><tr><td><b>kPa below specified strength:</b></td><td><b>Pay Factor:</b></td></tr><tr><td>1 - 700</td><td>0.98</td></tr><tr><td>701 - 1400</td><td>0.94</td></tr><tr><td>1401 - 2100</td><td>0.88</td></tr><tr><td>2101 - 2800</td><td>0.80</td></tr><tr><td>More than 2800</td><td>0.50 or engineer may reject</td></tr></table>					<b>kPa below specified strength:</b>	<b>Pay Factor:</b>	1 - 700	0.98	701 - 1400	0.94	1401 - 2100	0.88	2101 - 2800	0.80	More than 2800	0.50 or engineer may reject
<b>kPa below specified strength:</b>	<b>Pay Factor:</b>															
1 - 700	0.98															
701 - 1400	0.94															
1401 - 2100	0.88															
2101 - 2800	0.80															
More than 2800	0.50 or engineer may reject															
56	027710015	Concrete Curb Type B4	Meter													



Measured along the roadway face. Include excavation if Roadway Excavation is not a bid item.

**Price Adjustments for Strength**

- A. When concrete is below specified strength:
1. DEPARTMENT may accept item at a reduced price
  2. The pay factor will be applied to the portion of the item which is represented by the strength tests that fall below specified strength.
  3. Department will calculate the pay factor as follows:
- |                                      |                             |
|--------------------------------------|-----------------------------|
| <b>kPa below specified strength:</b> | <b>Pay Factor:</b>          |
| 1 - 700                              | 0.98                        |
| 701 - 1400                           | 0.94                        |
| 1401 - 2100                          | 0.88                        |
| 2101 - 2800                          | 0.80                        |
| More than 2800                       | 0.50 or engineer may reject |

57	02771012*	Waterway Transition	Each	In place
<b>Price Adjustments for Strength</b>				
A. When concrete is below specified strength:				
1. DEPARTMENT may accept item at a reduced price				
2. The pay factor will be applied to the portion of the item which is represented by the strength tests that fall below specified strength.				
3. Department will calculate the pay factor as follows:				
<b>kPa below specified strength:      Pay Factor:</b>				
1 - 700      0.98				
701 - 1400      0.94				
1401 - 2100      0.88				
2101 - 2800      0.80				
More than 2800      0.50 or engineer may reject				

58	027710025	Concrete Curb and Gutter Type B1	Meter
Measured along the roadway face. Include excavation if Roadway Excavation is not a bid item.			
Price Adjustments for Strength			
A. When concrete is below specified strength:			
1. DEPARTMENT may accept item at a reduced price			
2. The pay factor will be applied to the portion of the item which is represented by the strength tests that fall below specified strength.			
3. Department will calculate the pay factor as follows:			
kPa below specified strength: Pay Factor:			
1 - 700 0.98			
701 - 1400 0.94			
1401 - 2100 0.88			
2101 - 2800 0.80			
More than 2800 0.50 or engineer may reject			

59	027710040	Concrete Driveway Flared 150 mm Thick	Square Meter, in place.
Include Radius and Flares.			
Price Adjustments for Strength			
A. When concrete is below specified strength:			
1. DEPARTMENT may accept item at a reduced price			
2. The pay factor will be applied to the portion of the item which is represented by the strength tests that fall below specified strength.			
3. Department will calculate the pay factor as follows:			
kPa below specified strength: Pay Factor:			
1 - 700 0.98			
701 - 1400 0.94			
1401 - 2100 0.88			
2101 - 2800 0.80			
More than 2800 0.50 or engineer may reject			

60	027710045	Concrete Driveway Flared 175 mm Thick	Square Meter	Each
Include Radius and Flares.				
Price Adjustments for Strength				
A. When concrete is below specified strength:				
1. DEPARTMENT may accept item at a reduced price				
2. The pay factor will be applied to the portion of the item which is represented by the strength tests that fall below specified strength.				
3. Department will calculate the pay factor as follows:				
kPa below specified strength: Pay Factor:				
1 - 700 0.98				
701 - 1400 0.94				
1401 - 2100 0.88				
2101 - 2800 0.80				
More than 2800 0.50 or engineer may reject				

61	027710060	Disabled Pedestrian Ramp Type A	Square Meter	In place
<b>Price Adjustments for Strength</b>				
A. When concrete is below specified strength:				
1. DEPARTMENT may accept item at a reduced price				
2. The pay factor will be applied to the portion of the item which is represented by the strength tests that fall below specified strength.				
3. Department will calculate the pay factor as follows:				
<b>kPa below specified strength:      Pay Factor:</b>				
1 - 700      0.98				
701 - 1400      0.94				
1401 - 2100      0.88				
2101 - 2800      0.80				
More than 2800      0.50 or engineer may reject				

62	027710075	Disabled Pedestrian Ramp Type D	Square Meter	In place
<b>Price Adjustments for Strength</b>				
A. When concrete is below specified strength:				
1. DEPARTMENT may accept item at a reduced price				
2. The pay factor will be applied to the portion of the item which is represented by the strength tests that fall below specified strength.				
3. Department will calculate the pay factor as follows:				
<b>kPa below specified strength:</b>				
<b>Pay Factor:</b>				
1 - 700				
701 - 1400				
1401 - 2100				
2101 - 2800				
More than 2800				
0.98				
0.94				
0.88				
0.80				
0.50 or engineer may reject				

63	027710085	Disabled Pedestrian Ramp Type G	Square Meter	In place
<b>Price Adjustments for Strength</b>				
A. When concrete is below specified strength:				
1. DEPARTMENT may accept item at a reduced price				
2. The pay factor will be applied to the portion of the item which is represented by the strength tests that fall below specified strength.				
3. Department will calculate the pay factor as follows:				
<b>kPa below specified strength: Pay Factor:</b>				
1 - 700 0.98				
701 - 1400 0.94				
1401 - 2100 0.88				
2101 - 2800 0.80				
More than 2800 0.50 or engineer may reject				

## Section 02776: Concrete Sidewalk, Median Filler, and Flatwork

64	027760010	Concrete Sidewalk	Square Meter	In place
Include excavation if Roadway Excavation is not a bid item.				
Price Adjustments for Strength				
A. When concrete is below specified strength:				
1. DEPARTMENT may accept item at a reduced price				
2. The pay factor will be applied to the portion of the item which is represented by the strength tests that fall below specified strength.				
3. Department will calculate the pay factor as follows:				
kPa below specified strength: Pay Factor:				
1 - 700 0.98				
701 - 1400 0.94				
1401 - 2100 0.88				
2101 - 2800 0.80				
More than 2800 0.50 or engineer may reject				

65	027760030	Concrete Flatwork 100 mm thick	Square Meter	In place
<b>Price Adjustments for Strength</b>				
A. When concrete is below specified strength:				
1. DEPARTMENT may accept item at a reduced price				
2. The pay factor will be applied to the portion of the item which is represented by the strength tests that fall below specified strength.				
3. Department will calculate the pay factor as follows:				
<b>kPa below specified strength:</b>				
<b>Pay Factor:</b>				
1 - 700				
0.98				
701 - 1400				
0.94				
1401 - 2100				
0.88				
2101 - 2800				
0.80				
More than 2800				
0.50 or engineer may reject				

## Section 02785: Chip Seal Coat

66	027850030	Chip Seal Coat, Type C	Square Meters	In place
Include in this item cover material, blotter material, flush coat and temporary pavement markers. Emulsified asphalt paid separately.				

67	027850055	Emulsified Asphalt CRS-2P	Megagram	In place
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## Section 02821: Chain Link Fencing and Gates

68	028210024	1.2 m Chain Link Fence, Type III	Meter	In place
A. Measured parallel to the ground along the fence including line posts, less openings.				

69	028210028	1.8 m Chain Link Fence, Type III	Meter	In place
A. Measured parallel to the ground along the fence including line posts, less openings.				

70	028210042	Chain Link Fence, Type I with Barb Wire Arm	Meter	In place
A. Measured parallel to the ground along the fence including line posts, less openings.				

71	028210044	Chain Link Brace Post	Each	In place
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72	028210052	Chain Link Gate, H=1.8 m X W=1.2 m	Each	In place
A. Double gates will be counted as two gates. B. Include barbed wire arms on gates.				

<b>73</b>	<b>028210072</b>	<b>Chain Link Gate, H=1.2 m X W=3.0 m</b>	<b>Each</b>	<b>In place</b>
A. Double gates will be counted as two gates. B. Include barbed wire arms on gates.				

<b>74</b>	<b>02821008P</b>	<b>Sliding Chain Link Gate, H=1.8 m X W=9.1 m</b>	<b>Each</b>	<b>In place</b>
A. Include barbed wire arms on gates. B. Includes Posts, Wheels, and all Appurtenances				

<b>75</b>	<b>028210080</b>	<b>Chain Link Gate, H=1.2 m X W=3.6 m</b>	<b>Each</b>	<b>In place</b>
A. Double gates will be counted as two gates. B. Include barbed wire arms on gates.				

<b>76</b>	<b>028210084</b>	<b>Chain Link Gate, H=1.8 m X W=3.6 m</b>	<b>Each</b>	<b>In place</b>
A. Double gates will be counted as two gates. B. Include barbed wire arms on gates.				

## Section 02822: Right-of-Way Fence and Gate

<b>77</b>	<b>028220010</b>	<b>Right-of-Way Fence, TypeA (Metal Post)</b>	<b>Meter</b>	<b>In place</b>
Measure parallel to the ground along the fence including line posts, less openings.				

<b>78</b>	<b>028220020</b>	<b>Right-of-Way Fence, Type B (Metal Post)</b>	<b>Meter</b>	<b>In place</b>
Measure parallel to the ground along the fence including line posts, less openings.				

<b>79</b>	<b>028220075</b>	<b>Right-of-Way Gate 2.4 m</b>	<b>Each</b>	<b>In place</b>
Double gates will be counted as two gates.				

<b>80</b>	<b>028220080</b>	<b>Right-of-Way Gate 3.0 m</b>	<b>Each</b>	<b>In place</b>
Double gates will be counted as two gates.				

<b>81</b>	<b>028220090</b>	<b>Right-of-Way Gate 4.3 m</b>	<b>Each</b>	<b>In place</b>
Double gates will be counted as two gates.				

<b>82</b>	<b>028220105</b>	<b>Right-of-Way Brace Post</b>	<b>Each</b>	<b>In place</b>
Brace Posts include end, gate, corner or braced line posts				

83	02822011*	Temporary Fence	Meter	In place
Measure parallel to the ground along the fence including line post and brace posts, less openings.				

## Section 02842: Delineators

84	028420010	Delineator Type I	Each	In place
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85	028420030	Delineator - Culvert Marker	Each	In place
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## Section 02896: Boundary Survey

86	028960010	Boundary Survey and Survey Plat	Lump sum	
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87	028960020	Right-of-Way Markers	Each	
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## Section 02961: Rotomilling

88	029610030	Rotomilling - 50 mm	Square Meter	
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## Section 03211: Reinforcing Steel and Welded Wire

89	032110010	Reinforcing Steel - Coated	Kilogram	
<p><b>Measurement:</b> Per plan quantity.</p> <ol style="list-style-type: none"> <li>Do not include the mass of the coating or the specified test bars as computed weight.</li> <li>DEPARTMENT will not make allowances for extra reinforcing steel required to provide lap splices that are requested by the CONTRACTOR.</li> <li>DEPARTMENT will not make allowances for clips, chairs, wire, or other materials used for fastening reinforcement in place.</li> <li>When using soft metric bar sizes, DEPARTMENT will not allow adjustment in mass for the substitution.</li> <li>Adjustments to plan quantity by the kilogram.</li> </ol> <p><b>Payment:</b> DEPARTMENT will not pay for costs incurred by substituting U. S. Customary reinforcing bars for the specified metric bars.</p>				

## Section 03310: Structural Concrete

90	033100020	Concrete - Small Structure	Cubic Meter	
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**Measurement:**

- A. When the contract provides measurement per cubic meter, measure quantities by the dimensions shown.
- B. Use the prismoidal formula when the method of average end areas is not sufficiently accurate.
- C. Do not measure concrete required to fill over breakage of excavation for footings, walls, or slabs.
- D. DEPARTMENT will not deduct for volume occupied by pipes (other than culverts), reinforcing steel, piles, metal grillage, anchors, conduits, or weep holes.

**Payment:**

- A. DEPARTMENT will pay for reinforcing steel for structures separately, unless otherwise noted.
- B. DEPARTMENT will pay separately for concrete placed in individual structures containing less than 6.5 m<sup>3</sup> at the bid price per cubic meter for Concrete, Small Structure.
- C. DEPARTMENT will make no separate payment for excavation for structures.

**Price Adjustments for Strength**

- A. When concrete is below specified strength:
  - 1. DEPARTMENT may accept item at a reduced price
  - 2. The pay factor will be applied to the portion of the item which is represented by the strength tests that fall below specified strength.
  - 3. DEPARTMENT will calculate the pay factor as follows:

**kPa below specified strength:      Pay Factor:**

1 - 700	0.98
701 - 1400	0.94
1401 - 2100	0.88
2101 - 2800	0.80
More than 2800	0.50 or engineer may reject

**Section 02221: Remove Structure and Obstruction**

<b>91</b>	<b>02221002*</b>	<b>Remove Box Culvert (Both Ends)</b>	<b>Each</b>	<b>In place</b>
A. Measured parallel to length of box culvert and includes both ends of box culvert in each item.				

**Section 02821: Chain Link Fencing and Gates**

<b>92</b>	<b>028210016</b>	<b>1.5 m Chain Link Fence, Type II</b>	<b>Meter</b>	<b>In place</b>
A. Measured parallel to the ground along the fence including line posts, less openings.				

**Section 03211: Reinforcing Steel and Welded Wire**

<b>93</b>	<b>032110010</b>	<b>Reinforcing Steel - Coated</b>	<b>Kilogram</b>
<b>Measurement:</b> Per plan quantity. <ul style="list-style-type: none"> <li>1. Do not include the mass of the coating or the specified test bars as computed weight.</li> <li>2. DEPARTMENT will not make allowances for extra reinforcing steel required to provide lap splices that are requested by the CONTRACTOR.</li> <li>3. DEPARTMENT will not make allowances for clips, chairs, wire, or other materials used for fastening reinforcement in place.</li> <li>4. When using soft metric bar sizes, DEPARTMENT will not allow adjustment in mass for the substitution.</li> <li>5. Adjustments to plan quantity by the kilogram.</li> </ul> <b>Payment:</b> DEPARTMENT will not pay for costs incurred by substituting U. S. Customary reinforcing bars for the specified metric bars.			

**Section 03310: Structural Concrete**

94	033100010	Structural Concrete (Est. Qty _____ M³)	Lump
<b>Measurement:</b>			
A. When the Contract provides a lump sum bid, the quantities shown on the plans are estimated quantities only, and are not to be used as exact quantities.			
B. When the contract provides measurement per cubic meter, measure quantities by the dimensions shown.			
C. Use the prismoidal formula when the method of average end areas is not sufficiently accurate.			
D. Do not measure concrete required to fill over breakage of excavation for footings, walls, or slabs.			
E. DEPARTMENT will not deduct for volume occupied by pipes (other than culverts), reinforcing steel, piles, metal grillage, anchors, conduits, or weep holes.			
<b>Payment</b>			
A. DEPARTMENT will pay for reinforcing steel for structures separately, unless otherwise noted.			
B. DEPARTMENT will pay separately for concrete placed in individual structures containing less than 6.5 m³ at the bid price per cubic meter for Concrete, Small Structure.			
C. DEPARTMENT will make no separate payment for excavation for structures.			
D. DEPARTMENT will adjust prices as follows when the Contract provides for concrete structures as a lump sum:			
1. If the ENGINEER increases or decreases the quantity of concrete:			
C Unit price will be determined by dividing the contract lump sum price of that item by the estimated quantity of concrete as shown on the plans.			
C The contract lump sum price will be adjusted by an amount equal to the product of the change in quantity and computed unit price.			
2. If the estimated quantity of concrete as shown is in error by more than 10 percent:			
C The contract lump sum price will be increased or decreased by an amount equal to the product of the unit price determined in accordance with the previous line of this paragraph and the difference between the corrected quantity and the estimated quantity.			
E. Concrete Slope Protection: If preparation of the existing subgrade requires excavation or backfilling in excess of the 90 mm average depth beyond the slope at bid time, DEPARTMENT will pay per Section 01282.			
<b>Price Adjustments for Strength</b>			
A. When concrete is below specified strength:			
1. DEPARTMENT may accept item at a reduced price			
2. The pay factor will be applied to the portion of the item which is represented by the strength tests that fall below specified strength.			
3. Department will calculate the pay factor as follows:			
<b>kPa below specified strength:</b> <b>Pay Factor:</b>			
1 - 700                      0.98			
701 - 1400                      0.94			
1401 - 2100                      0.88			
2101 - 2800                      0.80			
More than 2800                      0.50 or engineer may reject			

## Section 02221: Remove Structure and Obstruction

95	022210055	Remove Concrete Headwall	Each	Removed
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96	022210095	Remove Pipe Culvert	Meter
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## Section 02610: Pipe Culverts

97	02610012*	5512 mm x 3607 mm Corrugated Steel Pipe Arch Culvert Class C	Meter
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Measured parallel to the center line from barrel end to barrel end, in place. Includes connection to existing pipe.



## Section 02821: Chain Link Fencing and Gates

98	028210016	1.5 m Chain Link Fence, Type II	Meter	In place
A. Measured parallel to the ground along the fence including line posts, less openings.				

## Section 03211: Reinforcing Steel and Welded Wire

99	032110010	Reinforcing Steel - Coated	Kilogram
<p><b>Measurement:</b> Per plan quantity.</p> <ol style="list-style-type: none"><li>Do not include the mass of the coating or the specified test bars as computed weight.</li><li>DEPARTMENT will not make allowances for extra reinforcing steel required to provide lap splices that are requested by the CONTRACTOR.</li><li>DEPARTMENT will not make allowances for clips, chairs, wire, or other materials used for fastening reinforcement in place.</li><li>When using soft metric bar sizes, DEPARTMENT will not allow adjustment in mass for the substitution.</li><li>Adjustments to plan quantity by the kilogram.</li></ol> <p><b>Payment:</b> DEPARTMENT will not pay for costs incurred by substituting U. S. Customary reinforcing bars for the specified metric bars.</p>			

## Section 03310: Structural Concrete

100	033100010	Structural Concrete (Est. Qty _____ M³)	Lump
<b>Measurement:</b>			
A. When the Contract provides a lump sum bid, the quantities shown on the plans are estimated quantities only, and are not to be used as exact quantities.			
B. When the contract provides measurement per cubic meter, measure quantities by the dimensions shown.			
C. Use the prismoidal formula when the method of average end areas is not sufficiently accurate.			
D. Do not measure concrete required to fill over breakage of excavation for footings, walls, or slabs.			
E. DEPARTMENT will not deduct for volume occupied by pipes (other than culverts), reinforcing steel, piles, metal grillage, anchors, conduits, or weep holes.			
<b>Payment</b>			
A. DEPARTMENT will pay for reinforcing steel for structures separately, unless otherwise noted.			
B. DEPARTMENT will pay separately for concrete placed in individual structures containing less than 6.5 m³ at the bid price per cubic meter for Concrete, Small Structure.			
C. DEPARTMENT will make no separate payment for excavation for structures.			
D. DEPARTMENT will adjust prices as follows when the Contract provides for concrete structures as a lump sum:			
1. If the ENGINEER increases or decreases the quantity of concrete:			
C Unit price will be determined by dividing the contract lump sum price of that item by the estimated quantity of concrete as shown on the plans.			
C The contract lump sum price will be adjusted by an amount equal to the product of the change in quantity and computed unit price.			
2. If the estimated quantity of concrete as shown is in error by more than 10 percent:			
C The contract lump sum price will be increased or decreased by an amount equal to the product of the unit price determined in accordance with the previous line of this paragraph and the difference between the corrected quantity and the estimated quantity.			
E. Concrete Slope Protection: If preparation of the existing subgrade requires excavation or backfilling in excess of the 90 mm average depth beyond the slope at bid time, DEPARTMENT will pay per Section 01282.			
<b>Price Adjustments for Strength</b>			
A. When concrete is below specified strength:			
1. DEPARTMENT may accept item at a reduced price			
2. The pay factor will be applied to the portion of the item which is represented by the strength tests that fall below specified strength.			
3. Department will calculate the pay factor as follows:			
<b>kPa below specified strength:</b>			
<b>Pay Factor:</b>			
1 - 700			
0.98			
701 - 1400			
0.94			
1401 - 2100			
0.88			
2101 - 2800			
0.80			
More than 2800			
0.50 or engineer may reject			

## Section 05120: Structural Steel

<b>101</b>	<b>051200010</b>	<b>Structural Steel (Est. Qty _____) (Specialty Item)</b>	<b>Lump Sum</b>
<p>A. The quantities of structural steel shown on the plans are estimated quantities. The DEPARTMENT will not consider variations from these quantities as cause for claims.</p> <p>B. Adjustments:</p> <ol style="list-style-type: none"> <li>The DEPARTMENT will adjust price in an amount equal to the product of the change in quantity times unit price if increases or decreases in quantities result from design revision.</li> <li>The DEPARTMENT will determine the unit price by dividing the contract lump sum by the estimated quantity of structural steel shown on the plans.</li> </ol>			

## Section 03310: Structural Concrete

102	03310010*	CIP Retaining Wall R-395A	Lump Sum												
<b>Measurement:</b> <ul style="list-style-type: none"><li>A. When the Contract provides a lump sum bid, the quantities shown on the plans are estimated quantities only, and are not to be used as exact quantities.</li><li>B. When the Contract provides measurement per cubic meter, measure quantities by the dimension shown.</li><li>C. Use the prismoidal formula when the method of average end areas is not sufficiently accurate.</li><li>D. DEPARTMENT will not measure concrete required to fill over breakage of excavation for footings, walls, or slabs.</li><li>E. DEPARTMENT will not deduct for volume occupied by pipes (other than culverts), reinforcing steel, piles, metal grillage, anchors, conduits, or weep holes.</li></ul>															
<b>Payment:</b> <ul style="list-style-type: none"><li>A. Includes concrete, reinforcing steel, temporary shoring, free draining Granular Backfill Borrow, formliner, excavation, fence, fence sleeves/brackets, composite drainage material, expanded polystyrene, preformed joint filler, and any other incidental items shown in the plans not included in any other pay items.</li></ul>															
<b>Price Adjustments for Strength</b> <ul style="list-style-type: none"><li>A. When concrete is below specified strength:<ul style="list-style-type: none"><li>1. DEPARTMENT may accept item at a reduced price</li><li>2. The pay factor will be applied to the portion of the item which is represented by the strength tests that fall below specified strength.</li><li>3. Department will calculate the pay factor as follows:<table><tr><td><b>kPa below specified strength:</b></td><td><b>Pay Factor:</b></td></tr><tr><td>1 - 700</td><td>0.98</td></tr><tr><td>701 - 1400</td><td>0.94</td></tr><tr><td>1401 - 2100</td><td>0.88</td></tr><tr><td>2101 - 2800</td><td>0.80</td></tr><tr><td>More than 2800</td><td>0.50 or engineer may reject</td></tr></table></li></ul></li></ul>				<b>kPa below specified strength:</b>	<b>Pay Factor:</b>	1 - 700	0.98	701 - 1400	0.94	1401 - 2100	0.88	2101 - 2800	0.80	More than 2800	0.50 or engineer may reject
<b>kPa below specified strength:</b>	<b>Pay Factor:</b>														
1 - 700	0.98														
701 - 1400	0.94														
1401 - 2100	0.88														
2101 - 2800	0.80														
More than 2800	0.50 or engineer may reject														

103	03310010*	CIP Retaining Wall R-395B	Lump Sum
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**Measurement:**

- B. When the Contract provides a lump sum bid, the quantities shown on the plans are estimated quantities only, and are not to be used as exact quantities.
- C. When the Contract provides measurement per cubic meter, measure quantities by the dimension shown.
- D. Use the prismoidal formula when the method of average end areas is not sufficiently accurate.
- E. DEPARTMENT will not measure concrete required to fill over breakage of excavation for footings, walls, or slabs.
- F. DEPARTMENT will not deduct for volume occupied by pipes (other than culverts), reinforcing steel, piles, metal grillage, anchors, conduits, or weep holes.

**Payment:**

- A. Includes concrete, reinforcing steel, temporary shoring, free draining Granular Backfill Borrow, formliner, excavation, fence, fence sleeves/brackets, composite drainage material, expanded polystyrene, preformed joint filler, and any other incidental items shown in the plans not included in any other pay items.

**Price Adjustments for Strength**

- A. When concrete is below specified strength:
  1. DEPARTMENT may accept item at a reduced price
  2. The pay factor will be applied to the portion of the item which is represented by the strength tests that fall below specified strength.
  3. Department will calculate the pay factor as follows:

<b>kPa below specified strength:</b>	<b>Pay Factor:</b>
1 - 700	0.98
701 - 1400	0.94
1401 - 2100	0.88
2101 - 2800	0.80
More than 2800	0.50 or engineer may reject

**Section 02911: Mulch**

104	029110020	Straw Mulch	Hectare
If the moisture content in straw mulch exceeds 18 percent, apply additional straw to compensate for the difference.			

**Section 02912: Topsoil**

105	02912003*	Strip and Stockpile Topsoil (Plan Quantity)	Cubic meter	In stockpile
106	02912004*	Spread Stockpiled Topsoil (Plan Quantity)	Square meter	In place

**Section 02922: Seed, Turf Seed, and Turf Sod**

107	029220010	Drill Seed	Hectare	In place
108	029220040	Broadcast Seed	Square Meter	Hundred, in place

109	02922005*	Broadcast Seed - Wetland Zone 1	Square Meter	Hundred, in place
110	02922006*	Broadcast Seed - Wetland Zone 3	Square Meter	Hundred, in place
111	029220060	Turf Sod	Square Meter	In place

## Section 02931: Pole Planting/Willow Cuttings

112	02931001P	Plant - Sandbar Willow - No.1 Container	Each	In place
113	02931002P	Plant - Whiplash Willow - No.1 Container	Each	In place
114	02931003P	Plant - Drummond Willow - No.1 Container	Each	In place
115	02931004P	Plant - Yellow Willow - No.1 Container	Each	In place

## Section 02932: Trees, Shrubs, and Groundcovers

116	02932001*	Plant - Nebraska Sedge Plugs - 250 mm Plug	Each	In place
Missing or unacceptable plant material at the final plant inspection will not be paid for.				
117	02932002*	Plant - Hard-stem Bulrush - 250 mm Plug	Each	In place
Missing or unacceptable plant material at the final plant inspection will not be paid for.				
118	02932003*	Plant - Olney's Bulrush - 250 mm Plug	Each	In place
Missing or unacceptable plant material at the final plant inspection will not be paid for.				
119	02932004*	Plant - Soft-stem Bulrush - 250 mm Plug	Each	In place
Missing or unacceptable plant material at the final plant inspection will not be paid for.				
120	02932005*	Plant - Giant Bur-reed - 250 mm Plug	Each	In place
Missing or unacceptable plant material at the final plant inspection will not be paid for.				
121	02932006*	Plant - Golden Currant - No. 1 Container	Each	In place
Missing or unacceptable plant material at the final plant inspection will not be paid for.				
122	02932007*	Plant - Red-osier Dogwoof - No. 1 Container	Each	In place
Missing or unacceptable plant material at the final plant inspection will not be paid for.				
123	02932008*	Plant - Peachleaf Willow - No. 5 Container	Each	In place

Missing or unacceptable plant material at the final plant inspection will not be paid for.
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124	02932009*	Plant - Fremont Cottonwood - No. 5 Container	Each	In place
Missing or unacceptable plant material at the final plant inspection will not be paid for.				

125	02932010*	Plant - Skunkbrush - No. 1 Container	Each	In place
Missing or unacceptable plant material at the final plant inspection will not be paid for.				

126	02932011*	Plant - Chokecherry - No. 1 Container	Each	In place
Missing or unacceptable plant material at the final plant inspection will not be paid for.				

## Section 02936: Vegetation Establishment Period

127	029360010	Establishment Period	Lump Sum
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## Section 02938: Tree Pruning

128	029380010	Tree Pruning	Each
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## Section 02891: Traffic Signs

129	018910010	Move Street Sign	Each	In place
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130	028910005	Remove Sign	Each
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131	028910010	Relocate Sign	Each	In place
Includes removal and disposal of existing concrete sign base.				

132	028910075	Auxiliary Sign Type A-2	Square Meter	In place
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133	028910130	Auxiliary Sign Type P-1	Square Meter	In place
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134	028910160	Sign Type P-1 610 mm X 762 mm	Each	In place
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135	028910170	Sign Type P-1 762 mm X 762 mm	Each	In place
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136	028910185	Auxiliary Sign Type P-2	Square Meter	In place
137	02891019P	Sign Type P-1 914 mm X 914 mm	Square Meter	In place
138	028910225	Sign Type P-2 762 mm X 762 mm	Each	In place
139	02891027*	Sign Type P-2 254 mm X 914 mm	Square Meter	In place
140	02891028*	Sign Type P-1 914 mm X 1219 mm	Square Meter	In place
141	02891029*	Sign Type P-1 1219 mm X 610 mm	Square Meter	In place
142	02891030*	Sign Type P-1 1219 mm X 229 mm	Square Meter	In place
143	02891031*	Sign Type P-1 610 mm X 1219 mm	Square Meter	In place
144	02891032*	Sign Type P-1 1500 mm X 900 mm	Square Meter	In place
145	02891033*	Sign Type P-2 5334 mm X 2896 mm	Square Meter	In place
146	02891034*	Sign Type P-2 2438 mm X 1372 mm	Square Meter	In place
147	02891035*	Sign Type P-2 2591 mm X 1067 mm	Square Meter	In place
148	02891036*	Sign Type A-2 1225 mm X 483 mm	Square Meter	In place
149	02891037*	Sign Type A-2 1067 mm X 457 mm	Square Meter	In place
150	02891038*	Sign Type A-2 1219 mm X 457 mm	Square Meter	In place
151	02891039*	Sign Type P-2 1829 mm X 610 mm	Square Meter	In place

152	02891040*	Sign Type P-1 3658 mm X 1981 mm	Square Meter	In place
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153	02891041*	Relocate Overhead Sign Structure	Lump
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## Section 02892: Traffic Signal

154	028920015	Signal Power Source	Each
Includes meter base, safety switch, rigid steel conduit, wire, weatherhead and conduit standoffs.			

155	02892001D	Traffic Signal System Overhead School Flasher	Lump sum
Includes all materials and workmanship to provide a complete and fully operational signal system.			

156	028920020	Installation of State Furnished Material	Lump sum
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157	028920025	Installation of State Furnished Mast Arm Mounted Sign	Each
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## Section 16525: Highway Lighting

158	165250015	Lighting Power Source	Each
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159	16525001D	Highway Lighting System Old Wellington Road	Lump Sum
Includes all materials and workmanship to provide a complete and fully operational highway lighting system.			





# NOTICE TO CONTRACTORS

Sealed proposals will be received by the Utah Department of Transportation UDOT/DPS Building (4th Floor), 4501 South 2700 West, Salt Lake City, Utah. 84114-8220, until 2 o'clock p.m. Tuesday, July 29, 2003, and at that time the download process of bids from the USERTrust Vault to UDOT will begin, with the public opening of bids scheduled at 2:30 for RECONSTRUCTION of SR-6; PRICE TO WELLINGTON in CARBON County, the same being identified as State Project No: SP-0006(29)229.

**Federal Regulations:**

Wage Rate Non-Applicable.

**Project Location:** 6.413 Kilometers of Route: 0006 from R.P. 242.97 to R.P. 247.01

**The principal items of work are as follows (for all items of work see attachment):**

HMA - 19.0 mm  
Granular Borrow  
Untreated Base Course 19 mm or 25 mm Max

**The project is to be completed:** in 180 Working Days.

**Mandatory Pre-bid Conference:** July 14, 2003, 10:00 am, UDOT Price District Office  
940 South Carbon Ave  
Price, Utah  
Phone No. 435-636-1470

Conference attendance is a requirement for bid submission.

**Other Requirements:**

All project bidding information, including Specifications and Plans, can be viewed, downloaded, and printed from UDOT's Project Development Construction Bid Opening Information website, <http://www.dot.utah.gov/cns/bidopeninfo.htm>. To bid on UDOT projects, bidders must use UDOT's Electronic Bid System (EBS). The EBS software and EBS training schedules are also available on this website.

Project information can also be reviewed at the main office in Salt Lake City, its Region offices, and its District offices in Price, Richfield, and Cedar City.

Project Plans cannot be downloaded or printed from the website unless your company is registered with UDOT. Go to UDOT's website to register. Unregistered companies may obtain the Specifications and Plans from the main office, 4501 South 2700 West, Salt Lake City, (801) 965-4346, for a fee of \$20.00, plus tax and mail charge, if applicable, none of which will be refunded.

Prequalification of bidders is required. Prior to submitting a bid, the bidder must have on file with the Utah Department of Transportation a completed and approved contractor's application for prequalification. Department processing time is 10 working days from receipt of properly executed documentation.

As required, a contractor's license must be obtained from the Utah Department of Commerce.

Each bidder must submit a bid bond from an approved surety company on forms provided by the Department; or in lieu thereof, cash, certified check, or cashier's check for not less than 5% of the total amount of the bid, made payable to the Utah Department of Transportation, showing evidence of good faith and a guarantee that if awarded the contract, the bidder will execute the contract and furnish the contract bonds as required.

The right to reject any or all bids is reserved.

If you need an accommodation under the Americans with Disabilities Act, contact the Construction Division at (801) 965-4346. Please allow three working days.

Additional information may be secured at the office of the Utah Department of Transportation, (801) 965-4346.

**Dated this 28th day of June, 2003.**

**UTAH DEPARTMENT OF TRANSPORTATION**  
**John R. Njord, Director**

# Utah Department of Transportation

## Bidder's Schedule

**Bid Opening Date:** 7/29/2003

**Project Number:** SP-0006(29)229

**Project Name:** SR-6; PRICE TO WELLINGTON

**Description:** RECONSTRUCTION

**Funding:** STATE

**Region:** REGION 4

**County:** CARBON

#	Item	Description	Quantity	Unit
<b>10 - ROADWAY</b>				
1	012850010	Mobilization	1	lump sum
2	013150010	Public Information Services	1	lump sum
3	015540005	Traffic Control	1	lump sum
4	015610010	Environmental Fence	415	meter
5	015710010	Check Dam (Straw or Hay Bale)	462	meter
6	015710030	Silt Fence	1034	meter
7	015710070	Drop-Inlet Barriers (Silt Fence)	52	meter
8	015710080	Sediment Trap	3	cubic meter
9	01571011*	Temporary Erosion Control (Contingent Sum)	1	lump sum
10	015720010	Dust Control and Watering	21500	kiloliter
11	017210010	Survey (Specialty Item)	1	lump sum
12	018910030	Mailbox Assembly	26	each
13	018920050	Reconstruct Manhole	61	each
14	02056001P	Granular Borrow	85300	cubic meter
15	020750020	Geotextiles - Erosion Control	145	square meter
16	022210030	Remove Catch Basin	2	each
17	022210040	Remove Cleanout Box	1	each
18	022210050	Remove Tree	48	each
19	022210075	Remove Guardrail	265	meter
20	022210080	Remove Fence	5639	meter
21	022210095	Remove Pipe Culvert	381	meter
22	02221010*	Remove Mailbox	27	each
23	02221011*	Remove Right-of-Way Markers	4	each
24	02221012*	Remove Wall	9	meter
25	022220005	Remove Concrete Sidewalk	1252	square meter
26	022220010	Remove Concrete Driveway	241	square meter
27	022220020	Remove Concrete Curb and Gutter	804	meter
28	022220040	Remove Asphalt Pavement	41500	square meter
29	022310010	Clearing and Grubbing	1	lump sum
30	023160020	Roadway Excavation (Plan Quantity)	110000	cubic meter
31	023180010	Small Ditch Excavation	3400	cubic meter
32	023730010	Loose Riprap	41	cubic meter
33	02610000*	Plug Pipe	2	each
34	026100004	450 mm Pipe Culvert Class A	748	meter
35	026100006	600 mm Pipe Culvert Class A	285	meter
36	026100048	600 mm Corrugated Steel Pipe Culvert Class A	68	meter
37	026100052	900 mm Corrugated Steel Pipe Culvert Class A	22	meter
38	02610009*	1800 mm x 1200 mm Corrugated Steel Pipe Arch Culvert Class A	8	meter
39	026100170	600 mm Smooth Lined Pipe Culvert Class A	148	meter
40	026100414	600 mm Reinforced Concrete Pipe Culvert Class B	52	meter
41	026100418	900 mm Reinforced Concrete Pipe Culvert Class B	16	meter
42	026130030	Culvert End Sections 450 mm	69	each
43	026130040	Culvert End Sections 600 mm	23	each
44	026130060	Culvert End Sections 900 mm	4	each

\*Note: Item numbers ending with "\*" or "P" identify a change to the Standard Specification, Supplemental Specifications or Measurement and payment. Read all related documents carefully.

# Utah Department of Transportation Bidder's Schedule

**Bid Opening Date:** 7/29/2003

**Project Number:** SP-0006(29)229

**Project Name:** SR-6; PRICE TO WELLINGTON

**Description:** RECONSTRUCTION

**Funding:** STATE

**Region:** REGION 4

**County:** CARBON

#	Item	Description	Quantity	Unit
<b>10 - ROADWAY</b>				
45	026140040	Salvage and Relay Culvert End Section	2	each
46	026350035	Rectangular Grate and Frame (Standard Grating), Std Dwg 1703	4	each
47	026350040	Rectangular Grate And Frame (Bicycle Safe Grating), Std Dwg 1703	8	each
48	027050010	Asphalt Pavement Sawing	2388000	millimeter per m
49	02721007P	Untreated Base Course 19 mm or 25 mm Max	28000	cubic meter
50	027410020	HMA - 19.0 mm	69000	Megagram
51	027480030	Emulsified Asphalt SS-1	102	Megagram
52	027490010	Asphalt Concrete Driveway	43	each
53	027650005	Traffic Striping Paint	1309	Liter
54	027650020	Pavement Message Paint	91	each
55	02771001*	Concrete Waterway	20	square meter
56	027710015	Concrete Curb Type B4	4	meter
57	02771002*	Waterway Transition	2	each
58	027710025	Concrete Curb and Gutter Type B1	1599	meter
59	027710040	Concrete Driveway Flared 150 mm Thick	597	square meter
60	027710045	Concrete Driveway Flared 175 mm Thick	81	square meter
61	027710060	Disabled Pedestrian Ramp Type A	9	square meter
62	027710075	Disabled Pedestrian Ramp Type D	7	square meter
63	027710085	Disabled Pedestrian Ramp Type G	8	square meter
64	027760010	Concrete Sidewalk	2408	square meter
65	027760030	Concrete Flatwork 100 mm thick	130	square meter
66	027850030	Chip Seal Coat Type C	154934	square meter
67	027850055	Emulsified Asphalt CRS-2P	300	Megagram
68	028210024	1.2 m Chain Link Fence, Type III	770	meter
69	028210028	1.8 m Chain Link Fence, Type III	46	meter
70	028210042	Chain Link Fence Type I with Barb Wire Arm	167	meter
71	028210044	Chain Link Brace Post	94	each
72	028210052	Chain Link Gate H- 1.8 m X W- 1.2 m	1	each
73	028210072	Chain Link Gate H- 1.2 m X W- 3.0 m	2	each
74	028210080	Chain Link Gate H- 1.2 m X W- 3.6 m	1	each
75	028210084	Chain Link Gate H- 1.8 m X W- 3.6 m	3	each
76	02821008P	Sliding Chain Link Gate H-1.8 m X W-9.1 m	2	each
77	028220010	Right-of-Way Fence, Type A (Metal Post)	319	meter
78	028220020	Right-of-Way Fence, Type B (Metal Post)	4705	meter
79	028220075	Right-of-Way Gate 2.4 m	4	each
80	028220080	Right-of-Way Gate 3.0 m	8	each
81	028220090	Right-of-Way Gate 4.3 m	3	each
82	028220105	Right-of-Way Brace Post	103	each
83	02822011*	Temporary Fence	3200	meter
84	028420010	Delineator Type I	104	each
85	028420030	Delineator - Culvert Marker	33	each
86	028960010	Boundary Survey and Survey Plat	1	lump sum
87	028960020	Right-of-Way Markers	54	each
88	029610030	Rotomilling - 50 mm	38041	square meter

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# Utah Department of Transportation Bidder's Schedule

**Bid Opening Date:** 7/29/2003

**Project Number:** SP-0006(29)229

**Project Name:** SR-6; PRICE TO WELLINGTON

**Description:** RECONSTRUCTION

**Funding:** STATE

**Region:** REGION 4

**County:** CARBON

#	Item	Description	Quantity	Unit
<b>10 - ROADWAY</b>				
89	032110010	Reinforcing Steel - Coated	993	kilogram
90	033100020	Concrete - Small Structure	16	cubic meter
<b>20 - STRUCTURES</b>				
Description: Drawing No. EIE-1612				
91	02221002*	Remove Box Culvert (Both Ends)	1	each
92	028210026	1.5 m Chain Link Fence, Type III	22	meter
93	032110010	Reinforcing Steel - Coated	35908	kilogram
94	033100010	Structural Concrete(Est. Lump Qty: 298 m3)	1	lump sum
<b>20 - STRUCTURES</b>				
Description: Drawing No. V-2025				
95	022210055	Remove Concrete Headwall	2	each
96	022210095	Remove Pipe Culvert	1	meter
97	02610012*	5512 mm x 3607 mm Corrugated Steel Pipe Arch Culvert Class C	13	meter
98	028210026	1.5 m Chain Link Fence, Type III	13	meter
99	032110010	Reinforcing Steel - Coated	2314	kilogram
100	033100010	Structural Concrete(Est. Lump Qty: 35 m3)	1	lump sum
101	051200010	Structural Steel (Specialty Item)(Est. Lump Qty: 1130 kg)	1	lump sum
<b>20 - STRUCTURES</b>				
Description: RETAINING WALL R-395A				
102	03310010*	CIP Retaining Wall R-395A	1	lump sum
<b>20 - STRUCTURES</b>				
Description: RETAINING WALL R-395B				
103	03310010*	CIP Retaining Wall R-395	1	lump sum
<b>30 - LANDSCAPING</b>				
104	029110020	Straw Mulch	5	hectare
105	02912003*	Strip and Stockpile Topsoil (Plan Quantity)	5017	cubic meter
106	02912004*	Spread Stockpiled Topsoil (Plan Quantity)	46000	square meter
107	029220010	Drill Seed	3	hectare
108	029220040	Broadcast Seed	114	square meter, ha
109	02922005*	Broadcast Seed - Wetland Zone 1	26	square meter, ha
110	02922006*	Broadcast Seed - Wetland Zone 3	11	square meter, ha
111	029220060	Turf Sod	2800	square meter
112	02931001P	Plant - Sandbar Willow - No. 1 Container	111	each

\*Note: Item numbers ending with "\*" or "P" identify a change to the Standard Specification, Supplemental Specifications or Measurement and payment. Read all related documents carefully.

# Utah Department of Transportation

## Bidder's Schedule

**Bid Opening Date:** 7/29/2003

**Project Number:** SP-0006(29)229

**Project Name:** SR-6; PRICE TO WELLINGTON

**Description:** RECONSTRUCTION

**Funding:** STATE

**Region:** REGION 4

**County:** CARBON

#	Item	Description	Quantity	Unit
<b>30 - LANDSCAPING</b>				
113	02931002P	Plant - Whiplash Willow - No. 1 Container	86	each
114	02931003P	Plant - Drummond Willow - No. 1 Container	74	each
115	02931004P	Plant - Yellow Willow - No. 1 Container	74	each
116	02932001*	Plant - Nebraska Sedge Plugs - 250 mm Plug	210	each
117	02932002*	Plant - Hard-stem Bulrush - 250 mm Plug	210	each
118	02932003*	Plant - Olney's Bulrush - 250 mm Plug	210	each
119	02932004*	Plant - Soft-stem Bulrush - 250 mm Plug	210	each
120	02932005*	Plant - Giant Bur-reed - 250 mm Plug	210	each
121	02932006*	Plant - Golden Currant - No. 1 Container	25	each
122	02932007*	Plant - Red-osier Dogwood - No. 1 Container	6	each
123	02932008*	Plant - Peachleaf Willow - No. 5 Container	6	each
124	02932009*	Plant - Fremont Cottonwood - No. 5 Container	12	each
125	02932010*	Plant - Skunkbrush - No. 1 Container	19	each
126	02932011*	Plant - Chokecherry - No. 1 Container	19	each
127	029360010	Establishment Period	1	lump sum
128	029380010	Tree Pruning	8	each
<b>40 - SIGNING</b>				
129	018910010	Move Street Sign	2	each
130	028910005	Remove Sign	39	each
131	028910010	Relocate Sign	13	each
132	028910075	Auxiliary Sign Type A-2	2	square meter
133	028910130	Auxiliary Sign Type P-1	3	square meter
134	028910160	Sign Type P-1 610 mm X 762 mm	14	each
135	028910170	Sign Type P-1 762 mm X 762 mm	6	each
136	028910185	Auxiliary Sign Type P-2	6	square meter
137	02891019P	Sign Type P-1 914 mm X 914 mm	5	square meter
138	028910225	Sign Type P-2 762 mm X 762 mm	6	each
139	02891027*	Sign Type P-2 254 mm X 914 mm	2	square meter
140	02891028*	Sign Type P-1 914 mm X 1219 mm	6	square meter
141	02891029*	Sign Type P-1 1219 mm X 610 mm	3	square meter
142	02891030*	Sign Type P-1 1219 X 229 mm	1	square meter
143	02891031*	Sign Type P-1 610 mm X 1219 mm	2	square meter
144	02891032*	Sign Type P-1 1500 mm X 900 mm	3	square meter
145	02891033*	Sign Type P-2 5334 mm X 2896 mm	16	square meter
146	02891034*	Sign Type P-2 2438 mm X 1372 mm	4	square meter
147	02891035*	Sign Type P-2 2591 mm X 1067 mm	3	square meter
148	02891036*	Sign Type A-2 1225 mm X 483 mm	1	square meter
149	02891037*	Sign Type A-2 1067 mm X 457 mm	1	square meter
150	02891038*	Sign Type A-2 1219 mm X 457 mm	1	square meter
151	02891039*	Sign Type P-2 1829 mm X 610 mm	2	square meter
152	02891040*	Sign Type P-1 3658 mm X 1981 mm	15	square meter

\*Note: Item numbers ending with "\*" or "P" identify a change to the Standard Specification, Supplemental Specifications or Measurement and payment. Read all related documents carefully.

# Utah Department of Transportation

## Bidder's Schedule

**Bid Opening Date:** 7/29/2003

**Project Number:** SP-0006(29)229

**Project Name:** SR-6; PRICE TO WELLINGTON

**Description:** RECONSTRUCTION

**Funding:** STATE

**Region:** REGION 4

**County:** CARBON

#	Item	Description	Quantity	Unit
<b>40 - SIGNING</b>				
153	02891041*	Relocate Overhead Sign Structure	1	lump sum
<b>50 - SIGNALS</b>				
154	028920015	Signal Power Source	1	each
155	02892001D	Traffic Signal System Overhead School Flasher	1	lump sum
156	028920020	Installation of State Furnished Material	1	lump sum
157	028920025	Installation of State Furnished Mast Arm Mounted Sign	2	each
<b>60 - LIGHTING</b>				
158	165250015	Lighting Power Source	1	each
159	16525001D	Highway Lighting System Old Wellington Road	1	lump sum
<b>75 - MISC BID</b>				
160	01557000*	Lane Rental	4000	hour

\*Note: Item numbers ending with "\*" or "P" identify a change to the Standard Specification, Supplemental Specifications or Measurement and payment. Read all related documents carefully.

Revised 7/18/00

The State of Utah Metric Standard Specifications for Road and Bridge Construction CSI Format, Edition of 1999 will apply on this project.

**SUPPLEMENTAL SPECIFICATION**

**SECTION 00120**

**INSTRUCTIONS TO BIDDERS**

Delete Section 00120 and replace with the following:

**PART 1 GENERAL**

**1.1 PREQUALIFICATION OF BIDDERS**

- A. Applies to all projects where the Department Engineer's Estimate is greater than or equal to \$500,000.
- B. Provide experience information on the "Contractor's Application for Prequalification" form and a confidential financial statement certified by a certified public accountant.
  - 1. Include a complete report of the bidder's financial resources and liabilities, equipment, past record, and personnel. Department establishes prequalification amount and classification.
  - 2. Allow a minimum of 10 days for Department approval of the "Contractor's Application for Prequalification."
- C. Prequalify at least once a year.
  - 1. The Department may change the prequalification amount during that period upon the submission of additional favorable reports or upon evidence of unsatisfactory performance.
  - 2. The prequalification amount limits bidding to individual contracts of a given size or for a particular type of work.
- D. If bid exceeds prequalification amount, including work in progress, Contract may not be awarded.

**REQUEST FOR BIDDING DOCUMENTS**

- A. Prequalified bidders must purchase and submit all proposals in the identical name used on their prequalification statement, or in accordance with a filed affidavit of change in firm name or personnel.



- B. Bidders must make a written or verbal request to the Construction Division to receive bidding documents.
- 1. Include a form entitled "Status of Work Under Contract" in the bidding documents. Show on the form the status of all work under contract and being prosecuted by the bidder both in and outside the State of Utah as of the date of the bidding proposal.
- 2. Complete, properly execute, and include the form in the bid proposal.
- 3. The Department declares Bid Proposals non-responsive if the Contractor's "Status of Work Under Contract" form:
  - a. Is not included in the bid proposal.
  - b. Does not show the sum of the amount of uncompleted work, both in and outside the State of Utah.
  - c. Shows that the estimate of the amount of work to be bid upon exceeds the amount for which the Contractor is prequalified.

### **1.3 JOINT VENTURE BIDDING**

- A. Prior to submitting a joint proposal on a single project, submit a letter of intent to the Department's Prequalification Board Secretary at least 4 working days before the bid opening. The Department consolidates individual prequalification amounts for the bid.

### **1.4 CONTENTS OF BID PROPOSALS**

- A. Contents:
  - 1. The location and description of the contemplated construction.
  - 2. The estimated quantities.
  - 3. A schedule of unit bid items.
  - 4. The time in which the work must be completed.
  - 5. The amount of the proposal guarantee.
  - 6. The date, time and place of the opening of proposals.
- B. The Department considers papers bound with or attached to the Bid Proposal as part of the Proposal, and does not detach or alter the documents when the Proposal is submitted.
- C. The Construction Division considers the plans, supplemental specifications, specifications and other documents that accompany the Bid Proposal as part of the Proposal whether attached or not, and they need not be returned as a part of the Bid Proposal.

### **1.5 ISSUANCE OF BID PROPOSALS**

- A. The Department reserves the right to refuse to issue a Bid Proposal or award a Contract to a bidder for any or all of the following reasons:
  - 1. Lack of prequalification.

2. Uncompleted work under contract that the Department determines will hinder or prevent the prompt completion of additional work if awarded.
  3. Failure to pay or settle claims.
  4. Failure to comply with any qualification regulations.
  5. Default under previous contracts.
  6. Unsatisfactory performance on previous or current Contract(s)
  7. Debarment by the Department.
  8. Serious misconduct that adversely affects the ability to perform future work.
  9. Failure to reimburse for monies owed on any previously awarded Department contracts including contracts where the prospective bidder was a party in a joint venture which failed to reimburse the Department.
- B. If the Department refuses to issue a Bid Proposal for any of the foregoing reasons, bidder may appeal in writing to the UDOT Deputy Director.
1. Specify the basis for the appeal in the written request.
  2. The Deputy Director may schedule either an informal or formal hearing.

#### **1.6 INTERPRETATION OF QUANTITIES IN BID PROPOSAL**

- A. Proposal quantities are estimates used for comparison and may be increased, decreased, or be eliminated in their entirety. Department pays for actual work performed and accepted, and materials furnished.

#### **1.7 EXAMINATION OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS AND WORK SITE**

- A. Examine proposed work site and all documents before submitting a Bid Proposal.
1. Bidder is responsible for all site conditions that should have been discovered had a reasonable site investigation been performed.
  2. The Department considers submitting a Bid Proposal as conclusive evidence the bidder knows the conditions to be encountered in performing the work and the requirements of the proposed Contract.
- B. All Department boring logs and other records of subsurface investigations are available for information purposes only and are not substitutes for bidder's own investigation, interpretation, and judgement. The Department obtained and used this information for design and estimating purposes only.
- C. Bidder is permitted to converse with Department personnel knowledgeable of the project, plans, specifications, materials sites, or conditions generally prevailing in the area of the proposed work to aid in pre-bid investigations.
1. Bidder conducts independent investigation, including a visit to the work site.
  2. The Engineer is available by appointment.

- D. The Department is bound only by written statements, representations, descriptions of conditions and work. No oral explanations or instructions are binding.
- E. To request explanations of the written proposal documents, contact the Engineer 14 days prior to bid opening to allow a reply before proposal submission. The Department responds to written requests from prospective bidders by certified letter or electronic communications before the specified time for opening proposals.
- F. Bidder acknowledges that he/she has investigated the nature and location of the work and knows the general and local conditions that can affect the work or its cost, including but not limited to:
  - 1. Conditions bearing upon transportation, disposal, handling, and storage of materials.
  - 2. The availability of labor, water, electric power, and roads.
  - 3. Uncertainties of weather, river stages, irrigation channel flow, lake and reservoir levels, or similar physical conditions of the ground.
  - 4. The type of equipment and facilities needed preliminary to and during work performance.
- G. The character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is ascertainable from an inspection of the site, as well as from the drawings and specifications and all exploratory work made available by the Department.
- H. Failure to take the actions described and acknowledged in this Article does not relieve the Contractor of the responsibility for estimating the difficulty and cost of successfully performing the work, or from proceeding to successfully perform the work without additional cost to the Department.

## **1.8 UDOT ELECTRONIC BID SYSTEM**

- A. Obtain UDOT's Electronic Bid System (EBS).
  - 1. Obtain software free of charge when purchasing plans and specifications for submitting a bid.
  - 2. Contact the UDOT Construction Division at (801) 965-4346 or (801) 965-4344 for EBS training. Training will be scheduled the week prior to the bid opening.
- B. Prepare and submit Proposals using the Department's Electronic Bid System
  - 1. Specify a unit price in figures for each pay item for which a quantity is given.
  - 2. The Electronic Bid System calculates the product of the respective unit prices, sub-totals and the total bid.

- C. When the Proposal permits a choice (alternate items) to be made, indicate the choice in the Electronic Bid System. The program will not permit an additional choice.
- D. Save the bid to a diskette using the Departments' Electronic Bid System. Also print Bid Report using the Electronic Bid System.
  - 1. The signed, printed Bid Report is the Contractor's official bid. Follow all Standard Specification requirements for the preparation of a bid.
  - 2. If there are any differences between the data on the diskette and the printed Bid Report, the Department changes the electronic data to match the printed Bid Report.
- E. Properly executed proposals consist of: Diskette, Bid Report, **and all required forms** printed from the Electronic Bid System Software.
- F. A representative of the bidder authorized to execute bid proposals signs the Bid Report signature page in ink.
- G. Confirm receipt of addenda.
- H. Provide the name and address of the individual signing the Proposal as well as the following names and addresses, as applicable.

Type of Bidder	Names and Office Addresses Required
Individual	Individual and Post Office address
Partnership	Each Member of the Partnership and each Post office address
Joint Venture	Each Member or officer of Firms represented and each post office address
Corporation	Corporation Name and corporate address

- I. By signing the Bid Report, bidders certify they understand and are in compliance with all provisions of this Section, article, "Non-Collusive Bidding Certification," and article, "Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions."

## 1.9 IRREGULAR BID PROPOSALS

- A. The Department considers a Bid Proposal irregular and rejects the Bid Proposal as non-responsive if:
  - 1. It is in a format other than electronic format, or if any part is detached, altered, or incomplete.

2. It contains unauthorized additions, conditional or alternate bids, or irregularities that make the Bid Proposal incomplete, indefinite, or ambiguous.
3. It includes added provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award.
  - a. This does not exclude a bid proposal limiting the maximum gross amount of awards acceptable to any one bidder at any one bid letting.
  - b. Department selects awards.
4. It contains unit prices which are not typed or completed in ink, or are not legible.
5. It does not contain a unit price for each pay item listed and the amount for each lump sum item, except in the case of authorized alternate pay items.
6. It contains changes in the unit prices such as erasures, strikeouts and white-outs that are not initialed in ink.
7. It is not properly signed.
8. It has a bid bond that is:
  - a. Submitted on a form that is not furnished by the Department.
  - b. Not properly signed.
9. It contains a "Status of Work Under Contract" standard form for contractors who are prequalified for less than Unlimited:
  - a. Which is incomplete and improperly executed.
  - b. Indicates the sum of the amount of **all** uncompleted work, plus the estimate of the amount of work to be bid upon, exceeds the amount for which the Contractor is prequalified.
10. Any of the unit bid prices are significantly unbalanced to the potential detriment of the Department. The Department may require written justification for the basis of the unit prices before making a decision as to whether the bid is irregular.
11. The receipt of Addenda is not acknowledged.
12. It does not comply with conditions of special provision for certification of Affirmative Action (DBE).

#### **1.10 PROPOSAL GUARANTY**

- A. The Department will not consider a Bid Proposal unless it is accompanied by a guaranty in the form of a certified check, cashier's check or guaranty bond for not less than 5 percent of the total amount of the bid made payable to the Utah Department of Transportation.
- B. Use the proposal guaranty bond form included in the Bid Proposal.

#### **1.11 DELIVERY OF BID PROPOSALS**

- A. Place Bid Proposals in a sealed envelope plainly marked to indicate a Bid Proposal. Include on envelope the project number, bid opening date, submitting contractor, and company address.
- B. Address envelope to: Engineer for Construction, 4501 South 2700 West, Salt Lake City, UT, 84114-8220.
- C. File the Bid Proposal before the time and at the place specified in the Advertisement.
- D. Bid Proposals received after the time specified for opening are returned unopened.

#### **1.12 WITHDRAWAL OR REVISION OF BID PROPOSALS**

- A. Bid Proposal may be withdrawn or revised after receipt by the Department.
- B. Provide the request for withdrawal or revision to the Department in writing or a telephone call followed by documented electronic communications before the time set for opening bid proposals.

#### **1.13 COMBINATION OR CONDITIONAL BID PROPOSALS**

- A. Bid Proposals may be issued for projects in combination or separately.
  - 1. Bid Proposals may be submitted either on the combination or on separate units of the combination.
  - 2. The award of combination bid proposals or separate bid proposals are made to the advantage of the Department.
  - 3. The Department will not consider combination bid proposals other than those specifically set up in the Bid Proposal.
  - 4. The Department writes separate contracts for each individual project included in the combination.
- B. The Department considers conditional bid proposals only when specified in the advertisement.

#### **1.14 PUBLIC OPENING OF BID PROPOSALS**

- A. Bid Proposals are opened and read publicly at the time and place indicated in the advertisement.

#### **1.15 DISQUALIFICATION OF BIDDERS**

- A. Department disqualifies a bidder and rejects a Bid Proposal for one or both of the following:
  - 1. More than one Proposal for the same work from an individual, firm, or corporation under the same or different names.

2. Evidence of collusion among bidders. Collusion participants are not recognized as bidders for future work until they are reinstated as a qualified bidder.

#### **1.16 NON-COLLUSIVE BIDDING CERTIFICATION**

- A. By submitting this Bid Proposal, each bidder and each person signing on behalf of any bidder certifies as to its own organization, under penalty of perjury, that to the best of their knowledge and belief:
  1. The prices in this Bid Proposal have been arrived at independently without collusion, consultation, communication, or agreement with any other bidder or with any competitor for the purpose of restricting competition.
  2. Unless required by law, the prices that have been quoted in this bid proposal have not been and will not be knowingly disclosed by the bidder, directly or indirectly, to any other bidder or competitor before opening of Bid Proposals.
  3. No attempt has been made or will be made by the bidder to induce any other person, partnership, or corporation to submit or not to submit a Bid Proposal for the purpose of restricting competition.
  4. The signers of the Bid Proposal will tender to the Department a sworn statement that the named Contractor(s) has not, whether directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action to restrain free competitive bidding in connection with this Proposal.
- B. The Department considers no a Bid Proposal for award, nor makes any award where there has not been compliance with this article, paragraph A, except as follows:
  1. If the bidder cannot make the foregoing certification, the bidder must furnish with the bid proposal a signed statement that describes in detail the reasons why the certification cannot be made.
  2. The Executive Director, or designee, determines that such disclosure was not made for the purpose of restricting competition.
- C. Any of the following does not constitute a disclosure within the meaning of this article, paragraph A, line 1:
  1. A bidder has published price lists, rates, or tariffs covering items being procured.
  2. A bidder has informed prospective customers of proposed or pending publication of new or revised price lists for such items.
  3. A bidder has sold the same items to other customers at the same prices being bid.
- D. A Bid Proposal made by a corporation is considered authorized by the board of directors of the bidder. Authorization is defined as signing and submitting the

bid proposal, and includes the declaration of non-collusion on the part of the corporation.

E. **UTAH DEPARTMENT OF TRANSPORTATION NON-COLLUSIVE BIDDING CERTIFICATION**

"I declare under penalty of perjury under the laws of the United States and the State of Utah that neither I, nor to the best of my knowledge any member or members of my firm or company have either directly or indirectly restrained free and competitive bidding on this project by entering into any agreement, participating in any collusion, or otherwise taking any action unauthorized by the Utah Department of Transportation, with regard to this Contract."

- F. Signing the Bid Proposal at the bottom of the Bid Schedule **certifies compliance** with all provisions of this Non-Collusive Bidding Certification.

**1.17 DEBARMENT**

- A. The Department may debar a Contractor from performing any work on Department or Department administered projects if:
1. The Contractor or an affiliate (defined as an owner, director, manager, officer or fiscal agent of the Contractor) has been convicted of or entered a plea of guilty or *nolo contendere* to a bid-related or a contract-related crime in any Court of competent jurisdiction.
  2. The Contractor or an affiliate has made a public admission of any bid-related or contract-related crime.
  3. The Contractor or an affiliate has falsified information or submitted deceptive or fraudulent statements in connection with prequalification, bidding, or performance of a contract.
  4. The Contractor or an affiliate has violated relevant antitrust laws covering bid rigging, collusion or restraint of free competition among contractors; (Violations covered by the Sherman Antitrust Act, 15 U.S.C. 1, *et seq.* and Title 76, Chapter 10, Section 911, *et se.*, U.C.A. 1953, as amended).
  5. The Contractor or an affiliate has demonstrated willful wrongdoing reflecting a lack of integrity in bidding or performing public projects.
  6. The Contractor, joint venturer, stockholder of 5 percent or more of the Contract, an affiliate, or any immediate relatives of the aforementioned, has been debarred or affiliated with another debarred person or contractors by the Federal Government or by another State government.
  7. The UDOT Deputy Director has reasonable grounds to believe and finds that the Contractor has acted in collusion with others to perform work on a project that supposedly satisfies disadvantaged business enterprise goals or requirements through other than *bona fide* disadvantaged business entities in any combination of individuals, firms or corporations.
  8. The Contractor or affiliate has defaulted under previous contracts.



9. The Contractor or affiliate has unsatisfactory performance on previous work or current Contract(s) consisting of, but not limited to:
  - a. Noncompliance with Contract.
  - b. Failure to complete work on time.
  - c. Instances of substantial corrective work before acceptance.
  - d. Instances of completed work that requires acceptance at reduced pay.
  - e. Production of non-specification work or materials, and when applicable, required price reductions or corrective work.
  - f. Failure to provide adequate safety measures and appropriate traffic control that endangered the safety of the work force and public.
10. The Contractor or an affiliate has questionable moral integrity as determined by the Department, the Attorney General of Utah or the Attorney General of the United States.
11. Failure to reimburse the State for monies owed on any previously awarded contract including those where the prospective bidder is a party to a joint venture and the joint venture has failed to reimburse the State for monies owed.
12. The UDOT Deputy Director has reasonable grounds to believe and finds that the public health, welfare or safety imperatively requires such action.

## **1.18 STATUS PENDING DEBARMENT**

- A. Contractor notified of proposed debarment as provided above is not permitted to contract with the Department, nor act as a subcontractor unless a request for either an information or formal hearing is pending.
- B. The proposed debarment period does not commence until the Department decision has been issued following the said hearing or hearings.

## **1.19 LENGTH OF DEBARMENT**

- A. Debarment is for a term of not less than 6 months and up to 3 years as determined by the Deputy Director.
- B. Department may adjust the period of debarment for mitigating circumstances including but not limited to the following:
  - 1. Degree of culpability.
  - 2. Restitution of damages to the State.
  - 3. Cooperation in the investigation of other bidding crimes.
  - 4. Disassociation with those involved in bidding crimes.
  - 5. Protection of the State that may be required.
  - 6. If such action would have unintended adverse consequences on competition.
- C. Debarment in no way affects the obligation of a Contractor to the Department to perform under existing contracts.
- D. The Department also reserves the right to declare a debarred Contractor in default on any existing contracts for adequate cause as provided in such contracts.

## **1.20 DEBARMENT - PROCEDURES**

- A. The procedure described in this Section, article “Debarment” applies if it is found that a contractor or an affiliate thereof is violating the prohibited activities.
- B. The Engineer for Construction notifies the Contractor in writing and by certified mail of the Department’s intention to debar. Written notice specifies:
  - 1. The grounds for such intended debarment.
  - 2. The date debarment becomes effective and the intended period of debarment.
  - 3. The procedure to follow if the Contractor desires to challenge the debarment or to offer information to the Department in mitigation of its alleged actions.

- C. Within 15 calendar days of receiving the notice of intended debarment, the Contractor may request either:
  - 1. An informal hearing before the Engineer for Construction.
  - 2. A formal hearing before the UDOT Deputy Director.
- D. The Contractor who elects to proceed at an informal hearing has the opportunity to appear at a mutually agreed upon time and location.
  - 1. Contractor may supply information in support of their position and has the opportunity to review the Department's evidence, present evidence, and discuss matters informally.
  - 2. No legal counsel is permitted for either party at the informal hearing.
- E. The UDOT Deputy Director of Transportation or designee conducts a formal hearing with assistance from the State Attorney General's Office. The Contractor who appears may be represented by counsel and has the opportunity to review the Department's evidence, and to present evidence in rebuttal either by sworn affidavit or by sworn testimony.
- F. Following either a formal or informal hearing, the Department representative conducting the hearing issues a written decision no later than 30 calendar days following the hearing.
- G. The decision of the UDOT Deputy Director following a formal hearing is administratively final and specifies the facts justifying the Department's actions and conclusion.
- H. If the Engineer for Construction's decision is to be appealed, the Contractor files notice in writing with the UDOT Deputy Director within 20 calendar days after receiving the decision from the Engineer for Construction. The Deputy Director then schedules a formal hearing as specified above.

**PART 2      PRODUCTS   Not used.**

**PART 3      EXECUTION   Not used.**

END OF SECTION

November 14, 2000

## **SUPPLEMENTAL SPECIFICATION**

### **SECTION 00555 M**

## **PROSECUTION AND PROGRESS**

September 12, 2000:

**Delete line "B1" of Paragraph 1.15, "Extending Contract Time," and replace with the following:**

1. Request in writing to add "Contract Time" due to extra work. This is included in a "Change Order" covering the proposed extra work if approved by the Engineer.

November 14, 2000

**Add the following to paragraph 1.4 "Progress Schedules:"**

- C. Prepare the Anticipated Monthly Payment Schedule using the dates and accomplishment shown on the Critical Path Method (CPM ) Baseline schedule.
- D. Prepare the Monthly Payment Schedule:
  1. Submit the proposed Monthly Payment Schedule before the date established for the first partial payment.
  2. Use form provide at the Preconstruction Conference.
  3. Include both monthly and semi-monthly payments when anticipated due to the volume of work on the project.
  4. Include all months during the life of the contract when payments are anticipated.
  5. Schedule must be supported by and coordinated with the CPM Baseline Schedule.
  6. Include dates of contract start, suspension, completion and milestones that impact payments.
- E. Submit Revised Payment Schedule within 30 days of notification by the Engineer. Payment Schedule Revisions are required when:
  1. Actual Payments vary 10 percent or more (plus or minus) from the submitted Payment Schedule and the variance is sustained for 60 days.
  2. Contract start, suspension, completion and milestones dates change.
  3. Change Orders are approved which increase or reduce the contract amount sufficient to vary actual payments 10 percent or more (plus or minus) from the accepted Payment Schedule.

## **SUPPLEMENTAL SPECIFICATION**

### **SECTION 00725 M**

## **SCOPE OF WORK**

**(Revised 4-11-00. Added to paragraph 1.15, Railway - Highway Provisions.)**

Add the following to the end of paragraph 1.15, Railway - Highway Provisions:

- E. Hold a preconstruction conference and give written notice to the Manager of Industry and Public Projects or equivalent position for the railroad company, when railroads are involved, at least 15 days before beginning any construction work on railroad right-of-way. Coordinate a work schedule based on the actual date both parties can begin work.
- F. Give at least 48 hours verbal notice to the Manager of Track Maintenance or equivalent position for the railroad company having responsibility for the area the project is in before beginning work once the work dates have been established.
- G. Give written notification to the Superintendent or equivalent position at least five days before any cancellation of work, and 15 days before re-commencing work.
- H. Execute a Right of Entry Agreement with the railroad company prior to performing any work within the railroad's right-of-way. Send executed copies of this agreement to the ENGINEER and UDOT's Region Utilities and Railroads Coordinator.
- I. Cleanup the right-of-way to the satisfaction of the railroad company. Pay, at CONTRACTOR's expense, for any cleanup done by the railroad company to the railroad company's right-of-way that should have been done by the CONTRACTOR.
- J. Flagging and inspection to be done by railroad company personnel when work and/or equipment of the CONTRACTOR is within 7.6 m of any of the railroad company's tracks.
- K. Determine the cost of required railroad flagging and/or inspection and cleanup crew. Include these costs in mobilization.

- L. UDOT will deduct payment under a construction accounting item for “Railroad Flagging, Inspection and Cleanup,” and pay the railroad directly for verified billings. No other compensation to the CONTRACTOR for this item will be allowed.
- M. Refer to project plans for names of railroad companies.

Delete line B of paragraph 1.20 “Value Engineering - Submitting Proposals” and replace with the following:

- B. The DEPARTMENT will notify the CONTRACTOR within 5 working days if it is determined that there is insufficient review time for a response.

## **SUPPLEMENTAL SPECIFICATION**

### **SECTION 00727 M**

## **CONTROL OF WORK**

Delete paragraph 1.14 and replace with the following:

#### **1.14 LOAD RESTRICTIONS**

- A. Observe legal load restrictions when hauling equipment or materials on public roads beyond project limits.
  - 1. A special permit does not decrease CONTRACTOR liability for damage.
  - 2. Refer to the "Utah Regulations for Legal & Permitted Vehicles."
- B. Do not apply weight restrictions to equipment or materials hauled over subgrade.
- C. Do not exceed legal gross weight limits on any public roads, structures, or on any component of the pavement structure excluding granular borrow.
- D. Suspend construction operations when load restriction violations are observed until acceptable corrective measures are approved by the ENGINEER.
- E. When public roads are used to haul any type of excavation, borrow, backfill, base, or surfacing material, the ENGINEER will contact the appropriate law enforcement agency, if excess load violations are suspected.
- F. For materials imported to the job site (i.e. Asphalt, Cement, Concrete, Steel, etc.):
  - 1. Provide the ENGINEER with invoices showing the gross load weights.
  - 2. DEPARTMENT will withhold payment for material used in the project if invoices are not provided.
  - 3. The ENGINEER will notify the appropriate enforcement agency if it is suspected that legal gross load limits are exceeded.

Delete paragraph 1.18 and replace with the following:

#### **1.18 PROJECT ACCEPTANCE - PARTIAL**

- A. The CONTRACTOR may request final inspection of a unit when:
  - 1. A unit or portion of the project is substantially complete, and

2. The unit or portion is considered or determined necessary for the convenience of traffic, such as a structure, an interchange, section of road, intersection, substation, or portion of a lighting or signal.
- B. If the unit has been completed according to the Contract, the ENGINEER may make written acceptance of that unit as complete and relieve the CONTRACTOR of further responsibility for that unit, with the following exceptions:
1. **Lighting And Signal Warranties And Guarantees**
    - a. The notice of acceptance for lighting and signal work will not be given until six months after the date of the inspection.
    - b. During this six-month period, all manufacturer's warranties and guarantees on contractor- furnished electrical and mechanical equipment will be enforced.
    - c. At the end of the six-month period, and after all electrical and mechanical defects within the scope of warranties and guarantees are corrected, the ENGINEER will make written acceptance of the work completed and relieve the CONTRACTOR of further responsibility for that portion of the project.
    - d. Partial acceptance will not void or alter any terms of the Contract.
  2. **Plant Establishment Periods:**
    - a. The notice of acceptance for plants will not be given until the establishment period as specified in the Contract is completed.
    - b. The establishment period on plants will begin after inspection by the ENGINEER and will continue as specified in the Contract.
    - c. At the end of the establishment period, and after all unacceptable plants have been replaced, the ENGINEER will make written acceptance of the plants and relieve the CONTRACTOR of further responsibility for that portion of the project.
  3. The six-month warranty period for lighting and signal work and the establishment period for plants will not affect the processing of a semi-final estimate when the Contract is 95 percent or more complete, or after completion of work on the project.



Delete paragraph 1.19 and replace with the following:

**1.19 Final Acceptance**

- A. The ENGINEER will conduct an inspection upon receiving notice from the CONTRACTOR of project completion. If the Contract is found to be satisfactorily completed, the inspection shall constitute the final inspection and the ENGINEER will notify the CONTRACTOR in writing the date the Contract was inspected and accepted.
- B. Immediately comply with and execute instructions given by the ENGINEER if the inspection discloses any unsatisfactory work.
- C. Upon correction of the work, another inspection will be conducted that constitutes the final inspection.
- D. If the work has been satisfactorily completed, the ENGINEER will notify the CONTRACTOR in writing of the date of final inspection and acceptance.

**SUPPLEMENTAL SPECIFICATION**

**SECTION 00810**

**OWNER CONTROLLED INSURANCE PROGRAM (OCIP)**

Delete Section 00810 and replace with the following:

**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

- A. Provisions of Owner Controlled Insurance Program (OCIP).

**1.2 GENERAL OCIP PROVISIONS**

- A. The awarded CONTRACTOR is required to complete forms and enroll in OCIP.
- B. Awarded CONTRACTOR is responsible for:
  - 1. Enrollment and compliance with all OCIP requirements for itself and subcontractors of all tiers.
  - 2. Assistance with enforcement of any OCIP provision that relates to subcontractors.
- C. All references to Subcontractors include all subcontractors, consultants and subconsultants **of every tier** to the CONTRACTOR, unless otherwise specified.
- D. All references to CONTRACTOR include all contractors, subcontractors, consultants and subconsultants of every tier to the CONTRACTOR, unless otherwise specified.
- E. All references to the OCIP Administrator are identified as:
  - Willis of Utah
  - 2890 East Cottonwood Parkway, Suite 350
  - Salt Lake City, UT 84121
- F. The OCIP requirements are not intended to create any contract between the subcontractors and the Utah Department of Transportation (UDOT or DEPARTMENT).

- G. OCIP will minimally provide:
1. Workers' compensation.
  2. Employer's liability, general liability, contractors pollution liability.
  3. Railroad protective, as required.
  4. Excess liability and builders risk for all eligible CONTRACTORs of every tier enrolled in the OCIP and working at the project site.
- H. OCIP will provide liability for architects and engineers for professional errors and omissions.
- I. The State agrees to pay all premiums associated with the OCIP including deductibles or self-insured retentions unless otherwise stated in the contract documents.
- J. Awarded Contractor and eligible subcontractors will not be allowed to work without enrolling in the OCIP.
- K. Carriers in OCIP Program.
1. Workers' Compensation, Employers Liability, General Liability: Argonaut
  2. Contractor Pollution Liability: ECS/Greenwich
  3. Professional Architects and Engineers Errors and Omissions: DPIC
  4. Excess Coverage: AIG and Cigna
  5. Railroad Protective: London
  6. Builder's Risk: CNA
- L. Insurance coverage provided by the DEPARTMENT under the OCIP does not extend to the activities or products of suppliers, material men, vendors, haulers, truckers and "owner/operators" whose employee(s) perform no on-site work or are engaged solely in loading, unloading, stocking, testing, or hauling equipment, supplies or materials.
1. Such persons are required to provide their own insurance and to promptly provide to UDOT or the OCIP Administrator certificates of insurance giving evidence that all required insurance is in force.
  2. Ineligible and eligible CONTRACTORs are required to maintain their own insurance at no expense to the DEPARTMENT of the types and with the limits found in this Section, paragraph titled "CONTRACTOR-Provided Coverages."
  3. Provide coverage that recognizes the DEPARTMENT's project sites, at no expense to DEPARTMENT.

### 1.3 ENROLLMENT

- A. Required of all awarded CONTRACTORS and subcontractors.
- B. Enroll in the OCIP by completing the attached OCIP Form 1 and submitting it and the General Liability and Workers Compensation policy information to the OCIP Administrator by the time the executed contract is returned to DEPARTMENT, or before beginning work, whichever occurs first.
  - 1. Require that each subcontractor enrolls in the OCIP by submitting the OCIP Form 1 to the OCIP Administrator prior to the subcontractor entering the project site.
  - 2. By completing and submitting this insurance cost information, including supporting documents to the DEPARTMENT or appointed Administrator, CONTRACTOR warrants that all insurance information is correct.

### 1.4 INSURANCE COSTS

- A. The DEPARTMENT will process an Initial Deductive Change Order (IDCO) of 1.722 percent of contract value to transfer the insurance cost into the project insurance program.
  - 1. During the term of the Project including extended periods, UDOT has the right to recover all costs for the Contractor's insurance as described in this section, Item B, paragraphs 1 - 4..
  - 2. UDOT has the right to recover these additional costs through deductive change orders.
- B. It is understood and agreed that 1.5 percent of the Initial Deductive Change Order are initial estimates only.
  - 1. The final insurance costs for Workers' Compensation and General Liability is subject to review and audit of actual insurance policy(ies) rate information, actual payrolls and revenues for the initial award, and change orders to the original scope of work.
  - 2. The DEPARTMENT's contract award will be based on the **bid amount** of work which includes the insurance costs that would have been incurred by the CONTRACTOR and its subcontractors if DEPARTMENT did not provide an OCIP.
  - 3. Add .222 percent to the bid for the cost of Contractors Pollution Liability, Excess Coverage, Railroad Protective Liability, and Builder's Risk. UDOT will include this cost in its Initial Deductive Change Order of 1.722 percent.
  - 4. One or more auditors from the insurance companies providing OCIP coverage will audit the payroll and contract revenue of each Contractor within 45 days of the OCIP Administrator receiving Form 4 - Notice of

Substantial Completion. If an eligible Contractor fails to provide all required OCIP enrollment documents or by any means prevents the auditor from auditing the payroll and contract amount, UDOT will process a Final Deductive Change Order (FDCO) of 3 percent of contract value.

- C. Awarded CONTRACTOR and subcontractors provide OCIP Form 1 and a copy of the declaration page(s) and premium rate page(s) for each applicable policy to the DEPARTMENT or its Administrator before the applicable work begins. Provide all necessary information for the DEPARTMENT or its appointed Administrator to determine the accuracy of its and subcontractors' cost of insurance.

## **1.5 CHANGE ORDER PRICING**

- A. Enrolled CONTRACTOR and Subcontractors price change orders to the original scope of work in the same manner as would occur if the DEPARTMENT did not provide an OCIP.
  - 1. Include markups otherwise provided for in the General Conditions.
  - 2. The DEPARTMENT will recover the insurance cost associated with change orders through the process provided for in Section 1.4, Insurance Costs, Item B.

## **1.6 CONTRACTOR'S RESPONSIBILITY FOR SUBCONTRACTORS**

- A. Include all the provisions of this agreement in every subcontract to be binding upon each subcontractor.

## **1.7 AUDITING INSURANCE COSTS**

- A. For insurance purposes, agree, and require all Subcontractors to agree to:
  - 1. Keep and maintain accurate record of its payroll for operations at the project site.
  - 2. Furnish to the State or its appointed Administrator, full and accurate payroll data and information in accordance with the requirements of the State of Utah OCIP Manual.
  - 3. Permit the DEPARTMENT, its Administrator, or Insurance Company to examine and/or audit its books and records, and provide any additional information as may be required to the DEPARTMENT or its Administrator or Carrier.

## **1.8 STATE PROVIDED COVERAGES**

- A. The DEPARTMENT at its sole expense has implemented this OCIP to furnish certain insurance coverages for on-site project activities.

1. The OCIP is for the benefit of the DEPARTMENT and its CONTRACTOR and subcontractors (unless specifically excluded) who have on-site employees.
  2. Such coverage applies only to work performed under this contract at the Project Site. Project Site is defined as the area described in the construction contract documents including the areas available for CONTRACTOR operations, access routes, right-of-ways, and approved additional sites necessary or incidental in connection with the work or emanating from the project site.
  3. CONTRACTOR and subcontractors must provide their own insurance for off-site activities. Off-site activities may be covered in the OCIP if 100 percent dedicated to the project as defined in the State of Utah OCIP Manual.
- B. The OCIP policies are available for review by the CONTRACTOR upon request to the DEPARTMENT.
1. The terms of such policies or programs are incorporated by reference, and may be amended occasionally.
  2. CONTRACTOR agrees to be bound by the terms of coverage as contained in such insurance policies and/or self-insurance programs.
- C. The DEPARTMENT at its own expense will minimally provide and maintain in force the types of insurance as listed in Section 1.9, Types of State Supplied Coverage. CONTRACTOR and subcontractors enrolled in OCIP agree that the purpose of this section is to provide a general understanding of the coverage provided by the OCIP.
- D. The enrolled CONTRACTOR agrees that the DEPARTMENT will withhold a sum equal to the amount of any covered loss under the policy(ies) caused by the CONTRACTOR or its Subcontractors, but not to exceed the applicable CONTRACTOR/Subcontractor deductible. DEPARTMENT will assess the sum to the CONTRACTOR or subcontractor causing the damage as determined by the Insurer, and will claim the sum as its property.

## **1.9 TYPES OF STATE SUPPLIED COVERAGE**

- A. Workers' Compensation and Employer's Liability Insurance (Argonaut Insurance Co.):
1. Scope of Coverage:
    - a. Operations. Work of an enrolled CONTRACTOR/subcontractor of every tier, performed at the Project Site.

- b. Insured. Enrolled CONTRACTOR/subcontractors of every tier. Each enrolled CONTRACTOR/Subcontractor will be issued a policy.
  - 2. Limits:
    - a. Worker's Compensation: Statutory
    - b. Employer's Liability:
      - \$1,000,000 - Each Employee Bodily Injury by Accident
      - \$1,000,000 - Each Employee Bodily Injury by Disease
      - \$1,000,000 - Bodily Injury by Accident or Disease - Any One Accident
    - c. CONTRACTOR's Deductible: Pay a \$200 deductible per workers' compensation claim.
  - 3. Effect on Future Experience Modifications.
    - a. Report all premiums and loss experience incurred by each enrolled CONTRACTOR/Subcontractor to NCCI or other appropriate authority.
    - b. Use all premiums and loss experience in the normal manner for calculating individual future experience modifiers.
- B. Commercial General Liability (Argonaut Insurance Co.)
  - 1. Provides coverage for Bodily Injury, Property Damage, Personal Injury and Products and Completed Operations. Completed Operations has a 5-year extension.
  - 2. Scope of Coverage:
    - a. Operations: Work of an enrolled CONTRACTOR/subcontractor of every tier performed at the Project Site.
    - b. Insureds: The State of Utah, UDOT, enrolled CONTRACTOR/Subcontractors of every tier.
    - c. Limits:
      - \$2,000,000 Bodily Injury & Property Damage Combined Single Limit
      - \$10,000,000 General Aggregate
      - \$10,000,000 Products and Completed Operations and Annual Aggregate
  - 3. CONTRACTOR's Deductible:
    - Pay a deductible for Third Party PD/BI cost of claims up to \$5,000 per occurrence or \$10,000 per vehicle accident.
- C. Railroad Protective (as required) (Lloyd's Underwriters)

1. Liability coverage for railroad companies.  
Scope of Coverage:
    - a. Operations: Work of any enrolled CONTRACTOR or Subcontractor of every tier performed on the Project Site.
    - b. Insured: All railroads affected.
    - c. Limits:
 

\$5,000,000	Each Occurrence
\$10,000,000	Aggregate
- D. Excess General Liability Insurance (Cigna and AIG)
1. Liability coverage in excess of Primary Commercial General Liability, Employer's Liability, and Railroad Protective Liability.
  2. Scope of Coverage:
    - a. Operations: Work of an enrolled CONTRACTOR, or subcontractor of every tier, performed at the Project Site.
    - b. Insured: The State of Utah, UDOT, enrolled CONTRACTOR/Subcontractors of every tier.
    - c. Limits:
 

\$100,000,000	Each Occurrence for all Insureds
\$100,000,000	Aggregate for all Insureds
- E. Professional Errors & Omissions Liability (DPIC/Security Insurance Co. of Hartford)
1. Liability coverage for Negligent Acts, Error or Omissions of the Insureds who have provided professional services for the State of Utah OCIP.
  2. Scope of Coverage:
    - a. Operations. Work done in conjunction with the State of Utah OCIP by Design and Consulting Engineers, Architects, Construction Managers and subconsultants.
    - b. Insured. The State of Utah, UDOT (as defined in policy), enrolled Design and Consulting Engineers, Architects, Construction Managers, subconsultants and CONTRACTORS, to the extent they provide professional services.
    - c. Limits-Project Term.
 

\$25,000,000	Claim
\$50,000,000	Aggregate
    - d. Consultant's Deductible:
 

\$50,000	Claim
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- F. CONTRACTOR's Pollution Liability (Greenwich Insurance Company)



1. Coverage for Liability arising from pollution releases during construction or remediation work.
2. Scope of Coverage:
  - a. Operations. Work done in conjunction with the State of Utah OCIP by enrolled CONTRACTORs and subcontractors of every tier.
  - b. Insured. State of Utah, UDOT, and enrolled Contractors or Subcontractors of every tier.
  - c. Limits - Project Term.  
 \$10,000,000 Occurrence  
 \$10,000,000 Aggregate
  - d. CONTRACTOR's Deductible. \$5,000 Occurrence

#### **1.10 CERTIFICATES AND POLICIES**

- A. All the DEPARTMENT-furnished insurance coverages:
  1. Are either written by insurance companies approved by the DEPARTMENT or are self-insured.
  2. The DEPARTMENT or appointed Administrator will provide CONTRACTOR and subcontractors with appropriate certificates of insurance or self-insurance evidencing the coverage outlined above.
- B. Termination/Modification of the OCIP:
  1. The DEPARTMENT reserves the right to terminate or to modify the OCIP or any portion thereof.
  2. To exercise this right, the DEPARTMENT will provide 90 days advance written notice to all prime or general CONTRACTORs covered by the OCIP.
  3. CONTRACTORs and Subcontractors are required to immediately obtain appropriate replacement insurance coverage acceptable to the DEPARTMENT. The DEPARTMENT will reimburse the reasonable cost of such replacement insurance.
  4. Provide written evidence of such insurance to the DEPARTMENT prior to the effective date of the termination or modification of the OCIP.

#### **1.11 CONTRACTOR RESPONSIBILITIES**

- A. Cooperate with the DEPARTMENT and its OCIP Administrator regarding the administration and operation of the OCIP.
- B. The CONTRACTOR's responsibilities include, but are not limited to:

1. Complying with applicable Construction Safety Program(s), State of Utah OCIP Manual, and State of Utah OCIP Safety and Health Manual;
2. Providing construction contract, operations and insurance information;
3. Immediately notifying the OCIP Administrator of all subcontractors upon contract award.
4. Maintaining and providing payroll records and other records as necessary for premium and Deductive Change Order/s computations;
5. Cooperating with any insurance company and OCIP Administrator with respect to requests for claims, payroll or other information required under the program;
6. Immediately notifying the DEPARTMENT that any CONTRACTOR-provided coverage has been canceled, materially changed, or not been renewed; and,
7. Completing the following administrative forms within the time frames specified:
  - a. UDOT OCIP Form 1 - OCIP Wrap-Up Enrollment. Upon execution of the contract.
  - b. Commercial General Liability Declarations page, Workers Compensation Information page, Premium Development Schedules for both and Insurance Certificate evidencing coverage upon execution of the contract.
  - c. UDOT OCIP Form 4 - Notice of Substantial Completion. Upon completion of all work being performed under the contract.
8. DEPARTMENT will send completed forms to the DEPARTMENT's OCIP Administrator at the following address:

Willis of Utah  
2890 East Cottonwood Parkway, Suite 350  
Salt Lake City, UT 84121
9. Failure to follow the procedures outlined in the State of Utah OCIP Manual and State of Utah OCIP Safety and Health Manual may result in forfeiture of coverage, fines and/or penalties assessed against the CONTRACTOR. The DEPARTMENT will deduct from monies due or to become due under payments of this contract for any applicable fines that are assessed as well as any other legal remedies available to the DEPARTMENT, which remedies may be cumulative.

## **1.12 ASSIGNMENT OF RETURN PREMIUMS**

- A. The DEPARTMENT will be responsible for the payment of all premiums associated solely with the OCIP and will be the sole recipient of any dividend(s) and/or return premium(s) generated by the OCIP.

- B. In consideration of the DEPARTMENT's providing said coverages the CONTRACTOR agrees to:
1. Provide cost information for themselves for worker's compensation, employer's liability, and general liability insurance as instructed on OCIP Form 1. This information may be inclusive of but not limited to insurance premiums, expected losses within any retention or deductible program, overhead and profit.
  2. Irrevocably assign to and for the benefit of the DEPARTMENT, all return premiums, premium refunds, premium discounts, dividends, retentions, credits, and any other monies due the DEPARTMENT in connection with the insurance which the DEPARTMENT agrees to provide, and agrees to evidence same by a formal instrument of assignment, if requested, to be promptly executed in the form prepared by the DEPARTMENT.
  3. The Awarded CONTRACTOR further agrees to require all tiers of enrolled subcontractors to execute a similar assignment for the benefit of the DEPARTMENT.

#### **1.13 CONTRACTOR-PROVIDED COVERAGES**

- A. Provide the following coverages even if OCIP provides coverage.
- B. For any work under this contract, and until completion and final acceptance of the work, promptly furnish to the DEPARTMENT's OCIP Administrator, at no cost to the DEPARTMENT, certificates of insurance giving evidence that certain coverages are in force. CONTRACTOR is responsible for subcontractors' compliance under this program.
- C. Enrolled CONTRACTORS and Subcontractors will endorse their Workers' Compensation and Employer's Liability policy with Designated Workplace Exclusion Endorsement and endorse its Commercial General Liability Policies with an Exclusion - Designated Work Endorsement (ISO Form CG 21 54 01 96) **to exclude operations on Project Site from its coverage.**
- D. Prior to entering the Project Site, CONTRACTOR and subcontractors will agree to obtain the insurance set out in this exhibit from a company or companies acceptable to the DEPARTMENT as follows:
1. Workers Compensation Insurance:
    - a. Provide at their own expense to cover full liability under the Worker's Compensation.
    - b. Laws of the jurisdiction in which the Project is located at the statutory limits required by said jurisdiction's laws.
  2. Employer's Liability Insurance: Provide at their own expense with the following minimum limits of liability:

\$100,000	Each Accident
\$500,000	Disease-Policy Limit
\$100,000	Disease-Each Employee

3. Commercial General Liability Insurance.

a. Provide at their own expense on an "occurrence basis", including insurance for operations, independent CONTRACTORS, products/completed operations, and contractual liability specifically designating the Indemnity provisions of this Contract Agreement as an insured contract on the Certificate of Insurance. Endorse the Commercial General Liability Insurance with a Broad Form Property Damage Endorsement (including Completed Operations) and afford coverage for explosion, collapse and underground hazards.

b. Provide insurance with limits not less than the following:

\$2,000,000	General Aggregate
\$2,000,000	Products-Completed Operations Aggregate
\$1,000,000	Personal & Advertising Injury
\$1,000,000	Each Occurrence
\$50,000	Fire Damage (Any one fire)
\$5,000	Medical Expense (Any one person)

State on the certificate that the required Commercial General Liability policy has been endorsed to name the State of Utah and DEPARTMENT as an Additional Insured.

4. Automobile Liability Insurance (Coverage not provided in OCIP)

a. Provide at their own expense, for claims arising from the ownership, maintenance, or use of a motor vehicle at, upon, or away from the Project Site.

b. Cover all owned, non-owned, and hired automobiles used in connection with the work, with the following minimum limits of liability:

\$1,000,000	Combined Single Limit Bodily Injury and Property Damage Per Occurrence
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c. State on the certificate that the required Automobile Liability Insurance policy has been endorsed to name the State of Utah and DEPARTMENT as an Additional Insured.

5. Aircraft Liability Insurance (Coverage not provided in OCIP)
  - a. Maintain Aircraft Liability Insurance with a combined single limit of not less than \$1,000,000 per occurrence. Applies to each CONTRACTOR and subcontractor using its own aircraft, or employing aircraft in connection with the work performed under this Program.
  - b. State on the certificate that the required Aircraft Liability Insurance policy has been endorsed to name the State of Utah and DEPARTMENT as an Additional Insured.
6. Valuable Papers and Records and or Electronic Data Processing (Data and Media) Coverage. (Coverage not provided in OCIP)
  - a. Provide coverage for the physical loss of or destruction to their work product including drawings, specifications and electronic data and media if needed.

#### **1.14 CERTIFICATES OF INSURANCE**

- A. Prior to entering the Project Site, CONTRACTOR and its subcontractors agree to provide to the DEPARTMENT's OCIP Administrator a Certificate of Insurance setting out required coverages and limits, and amendments to the certificate necessitated by changes to the work to be performed under the contract until the date of final payment.
- B. State on the certificate that the policies required have been endorsed to provide that the insurers will give the DEPARTMENT thirty days written notice prior to any cancellation or change in coverage.
- C. Endorse all required policies to include waivers of subrogation in favor of the DEPARTMENT.
- D. Maintain all required insurance without interruption from the date of commencement of the Work throughout the warranty period as scheduled in the Contract Agreement.
- E. All insurance policies provided must be primary and non-contributing with, and not in excess of, any other insurance available to the DEPARTMENT.
- F. Forward certificates to Willis of Utah, Attn: Sandy J. Gibbons, OCIP Administrator, 2890 East Cottonwood Parkway, Suite 350, Salt Lake City, UT 84121.

#### **1.15 NOTICE OF CANCELLATION**

- A. Provide policies and/or certificates that specify a 30-day notice of cancellation, non-renewal or material change to be sent to the OCIP Administrator.

#### **1.16 OTHER INSURANCE**

- A. CONTRACTOR is responsible to provide at its own expense any type of insurance or any increase of limits of liability not described above which a CONTRACTOR requires for its own protection or to comply with any statute.
- B. The OCIP is not an attempt to provide the CONTRACTOR and its subcontractors with complete insurance programs.
  - 1. The DEPARTMENT is not responsible to provide any insurance coverage not specified above.
  - 2. The CONTRACTOR and its Subcontractors are responsible for obtaining insurance programs that fit their particular needs, or which they deem advisable, whether or not specified above.

#### **1.17 SUBCONTRACTOR PARTICIPATION**

- A. Upon execution of the Contract, immediately report all new eligible Subcontractors to the OCIP Administrator for enrollment in the OCIP.
  - 1. Incorporate all the provisions of this agreement in any Subcontractor agreement and cause subcontractors to cooperate fully with the DEPARTMENT and insurance companies for the project in the administration of the OCIP.
  - 2. Agree to cooperate in the safety and accident prevention program and claim handling procedures as established for the project by the DEPARTMENT.
  - 3. In accordance with this paragraph and subparagraphs, do not permit any subcontractor to enter the Project Site prior to submitting enrollment forms in the DEPARTMENT's OCIP. Failure to do so will negate the afforded coverage(s).

#### **1.18 WAIVER OF SUBROGATION**

- A. Waive all rights of subrogation and recovery against the DEPARTMENT, its designees(s), Construction Managers, General CONTRACTORs and subcontractor(s) to the extent of any loss or damage that is insured under the OCIP.
- B. Waive rights of subrogation and recovery for damage to any property or equipment against the DEPARTMENT, its designees(s), Construction Managers, General CONTRACTORs and subcontractor(s).

- C. Require all subcontractor(s) to similarly waive their rights of subrogation and recovery in each of their respective construction contracts with respect to their work.

#### **1.19 NO RELEASE**

- A. Carrying the above-described insurance does not relieve the CONTRACTOR of any other responsibility or liability under this agreement or any applicable law, statute, regulation or order.

#### **1.20 APPROVAL OF FORMS AND COMPANIES**

- A. All insurance described in this contract shall be written by an insurance company or companies satisfactory to the DEPARTMENT and licensed to do business in Utah and shall be in a form and content satisfactory to the DEPARTMENT.
  - 1.No party subject to the provisions of this contract shall violate or knowingly permit to be violated any of the provisions of the policies of insurance described herein.
  - 2. All insurance should be provided by insurance companies with a Best's rating A-VIII or better.

#### **1.21 OCIP MANUAL, OCIP SAFETY AND HEALTH MANUAL AND CLAIMS PROCEDURES**

- A. CONTRACTOR and subcontractors agree to adhere to and perform all reporting requirements as detailed in the State of Utah OCIP Manual, and the State of Utah Safety and Health Manual.

#### **1.22 OCIP FORMS**

- A. OCIP forms are located on the web at  
[http://www.dot.state.ut.us/cns/ocip/ocip\\_forms.htm](http://www.dot.state.ut.us/cns/ocip/ocip_forms.htm).

### **STATE OF UTAH**

#### **Owner Controlled Insurance Program (OCIP)**

##### **Safety Overview**

The effectiveness of the Safety and Health Program depends upon the active participation and personal cooperation of all. Project cooperation and coordination of efforts toward carrying out the overall safety responsibilities are needed for an effective program.

The State of Utah-UDOT / OCIP Team will assist in monitoring CONTRACTORs and/or Subcontractor's implementation and application of their respective safety programs and the State of Utah-UDOT/OCIP safety programs at the work site. The State of Utah-UDOT/OCIP Team has the authority to stop work when either site conditions and/or work practices present an

imminent danger (i.e. may result in serious injury, death or extensive property damage) until those conditions and/or practices are corrected.

Each CONTRACTOR is held responsible for its own and its subcontractor's compliance with the project safety requirements.

Each CONTRACTOR and its Subcontractors shall establish and enforce an effective disciplinary program.

Each CONTRACTOR and its Subcontractors shall designate an on-the-job safety administrator. The administrator may be a supervisor/foreman with safety knowledge, and will be the State of Utah-UDOT/OCIP Team's contact for safety concerns.

All CONTRACTOR's and Subcontractor's supervision will need to attend S.T.A.R.T. training produced by the insurance carrier, approximately a 3-hour course. Contact Argonaut Safety Representative at 801-293-1100.

All employees (CONTRACTORs, Subcontractors, Engineers, etc.) working on the job will need to attend a construction orientation produced by the insurance carrier, approximately a 10 minute video and 3-page job rules and questions. This must be completed before beginning work on the site.

All employees (CONTRACTORs, Subcontractors, Engineers, etc.) working on the job shall have the proper Personal Protective Equipment for the job task they are performing. At the minimum a hard hat, safety glasses, safety vest, long pants, shirt with minimal 4-inch sleeve and work boots.

All employees (CONTRACTORs, Subcontractors, Engineers, etc.) shall have the proper training for the job task they are performing (confined space, fall protection, powder actuated tools, traffic control, equipment operating, etc.).

Each CONTRACTOR and its Subcontractors shall at a minimum conduct a weekly ToolBox safety meeting with all employees.

Each CONTRACTOR and its Subcontractors shall assure that a qualified "Competent Person" is provided at work locations where required by OSHA.

Each CONTRACTOR and its Subcontractors shall assure that all applicable forms (confined space permit, hot work permit, lock out/tag out, critical lift checklist, JSA, excavation permit, etc.) are provided at work locations where required by OSHA.

Each CONTRACTOR and Subcontractor shall adhere to a 100% drug/alcohol free work zone. At a minimum a pre-employment and post accident testing is required. The CONTRACTOR will



bear the cost or expenses associated with pre-employment testing. The Insurance Carrier will bear the cost of the post accident testing.

This is only a brief overview of the “State of Utah Owner Controlled Insurance Program” Safety and Health Manual. The more stringent applies if a conflict occurs between the provisions of this overview, the OCIP manual and applicable local, State or federal safety and health laws, regulations and/or standards, contract documents or the CONTRACTOR’s Safety Plan.

**SUPPLEMENTAL SPECIFICATION**

**SECTION 00820 M**

**LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC**

**(Revised 6/12/2001. Added to paragraph 1.14, Responsibility for Damage Claims)**

Add the following to the end of paragraph 1.14, Responsibility for Damage Claims:

- D. Local Government Projects Only:
  - 1. When railroads are involved, CONTRACTOR must provide UDOT with insurance policies and certificates for the railroad company in the following kinds and amounts:
    - a. Workman's compensation in statutory limits.
    - b. CONTRACTOR's Comprehensive General Liability in the minimum limits of \$2 million for injury of any person or \$6 million for injury or death of more than one person in any one accident, and \$2 million for damage to property in any one accident.
    - c. Railroad Protective Liability insurance naming in one policy, the railroad company as the insured, the policy being in conformance with and providing the minimum coverage described in the **23 CODE OF FEDERAL REGULATIONS PART 646A Section 646.11** which provides: "Coverage for bodily injury, death and property damage related to a combined single limit to \$2 million per occurrence with an aggregate of \$6 million for the term of the policy with respect to property damage."
- 1. **CONTRACTOR will require the railroad company furnishing insurance policies to refer to UDOT's Project Number listed on the Bid Book on those policies. Write insurance policies in the name of the railroad company.**
- 2. **Refer to the project plans for names of railroad companies.**

Delete paragraphs 1.18, 1.19, 1.20, 1.21, 1.22, and 1.23, and replace with the following:

**1.18 HAULING BY TRUCK - GENERAL**

- A. When additional trucks are needed for a Federal or State funded project, a lease agreement or subcontract must be in the project office before the additional trucks begin work on the project site.

**1.19 HAULING BY TRUCK - COMPLIANCE WITH STATE REGULATIONS**

- A. Comply with all State regulations regarding hauling by truck.
- B. Comply with all Federal and State regulations regarding hauling for Federal Funded Projects, including wages and hours.
- C. When using Independent Owner-Operators, follow written guidance provided by the U. S. Department of Labor in WH Publication 1297: "Employment Relationships under the Fair Labor Standards Act."
  - 1. The owner-operator must qualify under those guidelines to be classified an Owner-operator and be exempt from the pre-determined wage rates.
  - 2. The driver of the truck must be the registered owner and be shown as such on the vehicle registration. Corporations and partnerships do not qualify.
  - 3. A subcontract must be approved and in the project office before the owner-operator can work on the project.
  - 4. Show the owner-operator's name, address and social security on the payroll and classify them as "owner-operator. Hours worked and wages paid are not required.
- D. When leasing additional trucks, place the drivers of the leased trucks on the CONTRACTOR or subcontractor payrolls.

## **SUPPLEMENTAL SPECIFICATION**

### **SECTION 01282**

### **PAYMENT**

Delete Section 01282 and replace with the following:

#### **PART 1 GENERAL**

##### **1.1 RELATED SECTIONS**

- A. Section 00555: Prosecution and Progress
- B. Section 00570: Definitions
- C. Section 00725: Scope of Work
- D. Section 00727: Control of Work
- E. Section 01280: Measurement

##### **1.2 SCOPE OF PAYMENT**

- A. Department fully compensates Contractor as provided in the Contract for:
  - 1. Furnishing all materials, labor, equipment, tools, transportation and incidentals required for completion of the work.
  - 2. All loss or damage due to the nature of the work, action of the elements and unforeseen difficulties until final acceptance by the Department, subject to the provisions of Section 00725, article, "Contractor's Responsibility for Work."
  - 3. All costs arising from any infringement of a patent, trademark, or copyright.
- B. Lump sum: Complete payment for the work described in the Contract when used as an item of payment.
- C. Department will not pay Contractor for:
  - 1. Work that is in excess of that contained in the Contract.
  - 2. Removal and replacement of defective work.
  - 3. Loss of anticipated profits.

- D. Neither partial payment nor release of retainage relieves the Contractor of the obligation to correct all defective work or materials.

### **1.3 ALTERED QUANTITIES**

- A. When the accepted quantities of work vary from the estimated quantities in the Contract, the Department pays the original contract unit prices for the accepted quantities of work done.
  - 1. Department does not allow for any increased expenses, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor resulting either directly from such alterations or indirectly from unbalanced allocation among the contract items of overhead expense and subsequent loss of expected reimbursement or from any other cause.
  - 2. Exceptions: as provided in
    - a. Section 00555, article, "Termination of Contract for Convenience of the Department."
    - b. Section 00725, article, "Differing Site Conditions."
    - c. Section 00725, article, "Significant Changes in the Character of the Work."
    - d. Section 00725, article, "Suspensions of Work Ordered by the Engineer."

### **1.4 DIFFERING SITE CONDITIONS, CHANGES, EXTRA WORK**

- A. Department pays for differing site conditions, changes, and extra work performed under Section 00725 at unit price or lump sum as stipulated in the order authorizing the work.
- B. The Contractor's representative and the Engineer compare independent cost estimates to determine the cost of extra work.
- C. At the Engineer's request, provide a cost analysis for the extra work detailed as follows:
  - 1. Labor classifications, total hours for each classification, wage rate, and extension for each classification.
  - 2. Cost of fringe benefits and subsistence.
  - 3. Quantities of materials, prices, and extensions.
  - 4. Equipment classifications, total hours, rental rate, and extension for each unit of machinery and equipment.
  - 5. Transportation of materials and equipment.
  - 6. If applicable, subcontractors' cost analysis.

### **1.5 FORCE ACCOUNT WORK - GENERAL**

- A. Instead of a unit price or lump sum basis specified above, the Department may require the Contractor to do such work on a force account basis.
- B. Department does not make additional allowance for:
  - 1. Timekeepers, bookkeepers, or other general office help.
  - 2. General superintendent except for the time spent in direct supervision of the force account work.
  - 3. The use of small tools (tools costing \$400 or less) or other costs for which no specific allowance is herein provided.
- C. Department does not pay for pickup trucks used solely for transportation.
- D. Department pays straight time for all hours worked. Overtime must have the prior written approval of the Engineer.

#### **1.6 FORCE ACCOUNT WORK - LABOR**

- A. Compensation for labor: Department pays for all labor, including direct supervision, used in the actual and direct performance of the work, at the rate of wage (or scale) agreed upon in writing before beginning work.
- B. Department reimburses for actual costs paid to, or in behalf of workmen, including subsistence and travel allowances, and health and welfare required by collective bargaining agreements or other employment contract generally applicable to the classes of labor employed on the work.
  - 1. Department pays to Contractor an amount equal to 60 percent of the sum of the above items to cover the costs of bonds, insurance, taxes, etc.
  - 2. Contractor's wage, payroll, and cost records pertaining to work paid for on a force account basis is open to inspection or audit.

#### **1.7 FORCE ACCOUNT WORK - MATERIALS**

- A. Department pays for all materials accepted by the Engineer and incorporated in the project at actual cost:
  - 1. Including sales taxes and transportation charges plus 15 percent.
  - 2. Excluding machinery rentals as hereinafter set forth.
- B. Include invoices with statements for all materials used. Certify by affidavit the cost of material furnished from Contractor's stocks when no invoice is available.

## 1.8 FORCE ACCOUNT WORK - CONTRACTOR OWNED EQUIPMENT

- A. Department pays for machinery or special equipment, excluding small tools, authorized by the Engineer at an hourly rate obtained from the "*Rental Rate Blue Book For Construction Equipment*," (Blue Book). These hourly rental rates are determined by the monthly rental rate taken from the above mentioned publication divided by 176. Updated supplements are authorized for use Statewide on specified dates. Obtain this publication through:

Equipment Watch  
1735 Technology Drive, Suite 410  
San Jose, CA 95110-1313  
Phone: (800) 669-3282  
Fax: (408) 467-6795  
[www.equipmentwatch.com](http://www.equipmentwatch.com)

- B. The total hourly rates derived from the above have been computed from equipment costs currently in effect. The rates derived do not include costs for operating personnel.
- C. The rates require adjustment by a Regional Factor and a Depreciation Factor found in the front of each Chapter in the Rental Rate Blue Book.
- D. Equipment Rental rates can fall in the following two categories:
1. Operating Rate - For those hours the equipment is actually in use. Includes ownership and operating costs. Adjusted for depreciation using Rate Adjustment Table and region using the Regional Adjustment Maps.
  2. Standby Rate - Compensation for equipment required to be at the work site but not operating. Includes ownership costs only. This rate is 50 percent of the adjusted ownership costs computed in the previous article. The duration of allowable standby time is to be approved in writing by the Engineer with a maximum of 8 hours per day or 40 hours in a normal week.
- E. When the "Manufacturer's Rated Capacity" falls between those shown in this manual, the Department uses the shown capacity which is closest to the manufacturer's. Do not interpolate for rates in between.
- F. Agree upon all rates in writing before work is begun and measured as provided in Section 01280.

- G. Equipment rental rates not provided by the aforementioned manual must be approved by the Office of Construction and Materials before the start of any "force account work."
- H. Department allows "move-in" and "move-out" transportation cost for a piece of equipment not available on the job, if the particular piece of equipment is not moved onto the job under its own power.
  - 1. Department allows hourly operating rate for equipment moved to the site under its own power.
  - 2. Department pays these charges only once for any particular piece of equipment except in unusual circumstances that must be justified in writing and agreed to by the Engineer.

#### **1.9 FORCE ACCOUNT WORK - RENTED OR LEASED EQUIPMENT**

- A. When the equipment to be used is specialized in nature and is not available in the Contractor's inventory and is rented or leased from an outside source, Department adds a 10 percent allowance on the first \$5,000 plus five percent of the balance in excess of \$5,000 for overhead for all rented or leased equipment paid for by invoices.
  - 1. Where the rental rate charged exceeds the rate determined by the Blue Book, submit the rental or lease agreement to the Engineer for Construction and Materials for approval.
  - 2. Department pays equipment operating costs at the rate from the Blue Book for rented or leased equipment for each hour the equipment was actually used.
- B. When the required equipment is in the Contractor's available inventory but not on the project site, the equipment may be rented from a local source. The Engineer may approve rental rates for equipment obtained from local sources when such rates are within 10 percent of the Blue Book. When the equipment is to be used less than a week, "move-in" and "move-out" costs for Contractor owned equipment may be considered when comparing rental costs of equipment obtained from local sources.
  - 1. This option is only allowed when the cost of locally rented equipment would be less than using Contractor owned equipment including "move-in" and "move-out" charges.
  - 2. Such rentals must be supported by a cost analysis indicating the method used was the least expensive.
  - 3. If the Contractor elects to rent equipment of a type that is in the Contractor's inventory and the rental costs exceed that allowed by this article, the Department reimburses for such equipment based on the Blue Book.



#### **1.10 FORCE ACCOUNT WORK - SUBCONTRACTS**

- A. For all force account work performed under an approved subcontract, Department pays an additional allowance equal to ten percent of the first \$5,000 plus 5 percent of the balance in excess of \$5,000 for overhead for the subcontract.
- B. The Engineer reviews each situation to determine that performing the work by subcontract is justified.

#### **1.11 FORCE ACCOUNT WORK - STATEMENTS**

- A. The Contractor's representative and the Engineer compare records of the cost of work done as ordered on a force account basis.
- B. At the Engineer's request, provide an itemized statement of the cost of the force account work detailed as follows:
  - 1. Name, classification, date, daily hours designating straight time and overtime, total hours, rate, and extension for each laborer and supervisor. (Payrolls may be used for part of this information.)
  - 2. Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment.
  - 3. Quantities of materials, prices, and extensions.
  - 4. Transportation of materials and equipment.
  - 5. Cost of fringe benefits and subsistence.
  - 6. Subcontractors.

#### **1.12 ELIMINATED ITEMS**

- A. If the Department determines items contained in the Contract are unnecessary, the Engineer eliminates the items from the Contract with a Change Order to the Contractor. This action does not invalidate the Contract.
- B. When a Contractor is notified of eliminated items, Department reimburses for actual work done under the provisions of Section 01282, article, "Differing Site Conditions, Changes, Extra Work;" and articles concerning Force Account Work (General, Labor, Materials, Contractor-Owned Equipment, Rented or Leased Equipment, Subcontracts, Compensation).

#### **1.13 PROGRESS PAYMENTS**

- A. Department makes progress payments at least once each month as the work is progressing.

- B. More frequent payments may be made during any period when the Department determines that the value of work performed during the period is of sufficient amount to warrant a payment.
- C. Payments are based on estimates prepared by the Engineer of the value of the work performed and materials in place under the Contract and for materials delivered under this Section, article, "Payment for Material on Hand."
- D. Department makes no progress payment when the total value of the work done since the last estimate is less than \$1,000.
- E. From the total of the payable amounts, the Department deducts and retains 5 percent until after the entire Contract has been completed in an acceptable manner. When no less than 95 percent of the work has been completed, and with the consent of the Surety, the Engineer may prepare a semi-final estimate from which the Department retains 1-1/2 percent of the original contract amount. The Department certifies the remainder for payment, less all previous payments.
- F. The Contractor may enter into an addendum agreement providing for the payment of retained monies into an escrow account, or the Department does so automatically.
  - 1. These monies are to be applied toward the purchase of approved securities that are to be held by an escrow agent until satisfactory completion of the construction Contract.
  - 2. The value of the securities placed in escrow has a minimum value equal to or greater than the amount that would otherwise be retained.
  - 3. The addendum agreement must be executed concurrently with the execution of the construction Contract. Agreement forms are available in the office of the Department's Engineer for Construction and Materials.
- G. The Department pays the Contractor within 14 calendar days after certification and approval of billings and estimates.
  - 1. Contractor and Engineer agree to a Saturday partial estimate closing date. Succeeding partial estimates close on the same Saturday for each succeeding month.
  - 2. One month's work to be accomplished prior to submission of partial estimate. Engineer may process more than one partial estimate during the same estimate period if a large segment of work completed by the Contractor is greater than \$100,000.
  - 3. Contractor approves partial estimate prior to submission.

## **1.14 PAYMENT FOR MATERIAL ON HAND**

- A. When the Contractor presents delivery copies of invoices, the Department may include in the partial payment invoice, advance payments for acceptable nonperishable materials purchased expressly to be incorporated into the work when delivered in the vicinity of the project, or stored in approved storage place.
  - 1. The Engineer determines the amount to be included in the estimate, but in no case will the amount exceed the value of the materials as shown on the delivery invoice, or 75 percent of the in-place price, whichever is less.
  - 2. When the approved storage location is other than the project site, furnish evidence that the stockpiled materials are irrevocably obligated to the project.
  - 3. Department does not pay when the invoice value of such materials, as determined by the Engineer, amounts to less than \$2,000 or if materials are to be stored less than 30 calendar days.
  - 4. Within 60 calendar days following the date of the estimate invoice on which the stockpile material is to be paid by the Department, furnish to the Engineer certified paid invoices or a certified statement with a copy of the check showing payment.
  - 5. Material will be removed from the next partial estimate as stockpiled materials if proper invoices showing payment to the supplier is not received.
- B. Department makes no partial payment on living or perishable materials until incorporated as specified in the Contract.
- C. Department does not pay for materials brought onto the site at the Contractor's election that may be incorporated into the project such as fuels, supplies, metal decking forms, ties, or supplies used to improve efficiency of operations.
- D. Approval of partial payment for stockpiled materials does not constitute final acceptance of such materials for use in completing items of work.
- E. Department purchases at actual cost and without any percentage allowance for profit, materials delivered to the project in compliance with the Contract or left unused due to changes in plans or variation in quantities, if the materials are not practicably returnable for credit.
  - 1. Purchased materials become the property of the Department.
  - 2. Actual costs are based on invoice price plus transportation costs to the work.

- F. Payment is limited to contract quantities unless ordered by the Engineer. Assume responsibility for excess materials delivered to the project, or aggregate produced beyond the contract amount without authority from the Engineer.
- G. At the option of the Department, surplus aggregates up to the contract quantities may be purchased provided:
  - 1. The material is stockpiled where directed, and
  - 2. The material meets specification requirements when stockpiled.
- H. Department pays for material accepted on an agreed price basis, which price is normally the Contractor's production cost. In addition, the Department pays the cost to haul the materials to the stockpile site and place in pile at the rate of 9 cents per ton mile or 20 cents per cubic yard mile.

#### **1.15 ACCEPTANCE AND FINAL PAYMENT**

- A. When the project has been accepted as provided in Section 00727, articles, "Project Acceptance - Partial," and "Project Acceptance - Final," the Engineer prepares the final estimate of work performed.
  - 1. If the Contractor approves the final estimate or does not object to the quantities within 30 calendar days of receiving the final estimate, the Department processes the estimate for final payment.
  - 2. After approval of the final estimate by the Contractor, Department pays for the entire sum due after deducting all previous payments and all amounts to be retained or deducted under the provisions of the Contract.
- B. If additional payment is due from the Department, file with the Department a full, complete, and itemized written statement justifying the adjustment within 30 calendar days after the final estimate is submitted for approval.
  - 1. All disputes not itemized in said statement are waived by the Contractor.
  - 2. Submission of disputes by the Contractor will not be reason for withholding full payment of the total value of work shown on the Engineer's final estimate.
  - 3. The Department evaluates the dispute. If it is determined that additional payment is due, the final estimate is revised accordingly, under the terms of the Contract. If not, the estimate as submitted is final.
- C. All prior partial estimates and payments is subject to correction in the final estimate and payment.
- D. The Department has the final estimate complete and to the Contractor within six months of when the Contractor meets substantial completion of the project and has supplied the Engineer with all project certifications.

## 1.16 ADJUSTMENTS FOR FUEL COST

- A. This price adjustment provision is intended to minimize risk to the Contractor due to potential volatile price fluctuations for fuel that might occur throughout the duration of the Contract.
  - 1. The Contractor may invoke this provision at any time during the Contract by written notification to the Engineer.
  - 2. Adjustments are then made on all prior and future partial estimates. When this provision becomes effective, it remains in effect for the duration of the Contract.
- B. This provision is not designed to estimate actual quantities of fuel used in construction operations, but to provide a reasonable basis for calculating a fuel price adjustment based on average conditions.
- C. Department determines compensation adjustments under the provisions of this Section, and presumes that the Contractor has relied on these provisions for compensation adjustments when determining unit bid prices.
- D. Terms for calculating adjustments for fuel costs:
  - 1. Fuel Partial Estimate Base Price (EP): - The average of all base prices determined during the partial estimate period.
    - a. The Department determines the base price per barrel for crude on the first working day of each week, using postings from the commodities and futures section of the Wall Street Journal for West Texas Intermediate (WTI) crude using the spot price for that date as a basis.
    - b. A conversion factor of 42 gallons per barrel is used.
  - 2. Fuel Contract Base Price (CP): The base price determined for the week during which the bid opening is held. The source of the price is the same as that used for the (EP).
  - 3. Fuel Usage Factors (FU): A combined diesel and gasoline factor. Table 1 contains the items for which adjustments may be made, and the fuel usage factors upon which the adjustment is based.
- E. Determining Adjustments (AF): The Engineer computes the adjustments separately for each partial estimate period. The adjustment is determined based on appropriate items in Table 1 using the formula with the following constraints.
  - 1. The Partial Estimate Base Price must change plus or minus 15 percent from the Contract Base Price before an adjustment is made; then add or deduct 5 percent per the formula.

2. Engineer adjusts only major contract items as defined by Section 00570, article, "Terms," paragraph, "Major and Minor Contract Items," or items that have an individual value of \$100,000 or more based on original contract quantities.
  3. Adjustments in compensation may be either plus or minus depending on the differences between the Contract Base Price and the Partial Estimate Base Price.
- F. Work Beyond Contract Time: Adjustment will not apply to any work performed after the expiration of contract time plus approved time extensions.
- G. Upward Ceiling: If the Partial Estimate Base Price increases by more than 50 percent from the Contract Base Price for an adjustable bid item, the Department determines whether it is feasible for the remainder of the project to proceed, and notifies the Contractor in writing if the project is to be terminated.
- H. Adjustment Formula:

EP greater than CP:

$$AF = \frac{[(EP - CP) - 0.05 CP] Q (FU)}{42}$$

EP less than CP:

$$AF = \frac{[(EP - CP) + 0.05 CP] Q (FU)}{42}$$

Where:

EP	=	Partial Estimate Base Price per barrel (dollars)
CP	=	Contract Base Price per barrel (dollars)
Q	=	Quantity of Acceptable Work Performed on Item
FU	=	Fuel Usage Factor for that Item
AF	=	Adjustment for Fuel Costs in Dollars
42	=	Gallons per Barrel of Crude

**Table 1**  
**Adjustable Items and Fuel Usage Factors**

<b>Item of Work</b>	<b>Quantity of Work (Q)</b>	<b>Combined Diesel &amp; Gasoline Usage Factor (FU)</b>
Roadway Excavation, Borrow, Embankment, Granular Borrow, Top Soil	Cubic Yard Ton	0.45 0.25
Loose Riprap	Cubic Yard	0.57
Underdrain Granular Backfill	Cubic Yard	1.16
Untreated Base Course	Ton	0.84
Hot Mix Asphalt	Ton	3.60
Open-Graded Surface Course	Cubic Yard Ton	7.20 3.60
Cover Material: Produced and Placed on Roadway	Ton	0.64
Produced and Stockpiled	Ton	0.36
Portland Cement Concrete Pavement	1 inch thick	0.214
Lean Concrete Base Course	Sq Yard	0.048
Structures (includes: Concrete, Piles, Reinforcing Steel, Structural Steel) Pipe Culvert Special Pipe Culvert (includes excavation for structures) Underdrains Right-of-Way Fence & Gates Seeding Concrete Small Structures Portland Cement Concrete Highway Traffic Paint Precast Concrete Barrier Guardrail	\$	0.038 Gal

## 1.17 ADJUSTMENT FOR ASPHALT MATERIALS

- A. This price adjustment provision is intended to minimize risk to the Contractor due to potential volatile price fluctuations for asphalt materials that might occur throughout the duration of the Contract.
  - 1. The Contractor may invoke this provision at any time during the Contract by written notice to the Engineer.
  - 2. Department then adjusts future partial estimates. When this provision becomes effective it remains in effect for the duration of the Contract.
- B. Department adjusts the price of asphalt materials for work done on bid items that contain asphalt materials, including asphalt cement, liquid asphalt, and emulsified asphalt.
- C. Department determines compensation adjustments under the provisions of this Section, and presumes that the Contractor has relied on these provisions for compensation adjustments when determining unit bid prices.
- D. Terms for calculating adjustments for asphalt materials are as follows:
  - 1. Asphalt Partial Estimate Base Price (EP): The average of all the base prices determined during the partial estimate period.
    - a. On the first working day of each week, the Department determines the base price per barrel for crude oil using postings from the commodities and futures section of the Wall Street Journal for West Texas Sour (WTS).
    - b. A conversion factor of 5.6 barrels per ton is used.
  - 2. Asphalt Contract Base Price (CP) - The base price determined for the week during which the bid opening is held is the Contract Base Price. The source of the price is the same as that used for the (EP).
- E. Determining Adjustments (AF): The Engineer computes the adjustments separately for each partial estimate period. The adjustment on each item is determined using the formula with the following constraints.
  - 1. The Partial Estimate Base Price of asphalt materials must change plus or minus 15 percent from the Contract Base Price before an adjustment is made; then add or deduct 5 percent per the formula.
  - 2. Adjustments in compensation may be either plus or minus depending on the differences between the Contract Base Price and the Partial Estimate Base Price.
- F. Work Beyond Contract Time: Adjustment will not apply to any work performed after the expiration of contract time plus approved time extensions.



G. Upward Ceiling: If the Partial Estimate Base Price increases by more than 50 percent from the Contract Base Price for an adjustable bid item, the Department determines the feasibility for proceeding with the remainder of the project and notifies the Contractor in writing if the project is to be terminated.

H. Adjustment Formula  
EP greater than CP:  
 $AF = [(EP - CP) - 0.05 CP] (5.6) Q$   
EP less than CP:  
 $AF = [(EP - CP) + 0.05 CP] (5.6) Q$

Where:

EP = Partial Estimate Base Price per barrel (dollars)  
CP = Contract Base Price per barrel (dollars)  
Q = Quantity in ton of Asphalt Materials used  
AF = Adjustment for Asphalt Costs in dollars  
5.6 = Barrels per ton of Asphalt

The Engineer calculates the tons of asphalt product that will be Q in the above equation for the following:

HMA (Hot Mix Asphalt)  
Open-Graded Surface Course  
Emulsified Asphalts  
Cutback Asphalts

PART 2 PRODUCTS **Not used.**

PART 3 EXECUTION **Not used.**

END OF SECTION

January 9, 2001

**SUPPLEMENTAL SPECIFICATION**

**SECTION 01285 M**

**MOBILIZATION**

Delete paragraph 1.1 and add the following:

**1.1 SECTION INCLUDES**

- A. Preparatory work and operations necessary for moving personnel, equipment, supplies, and incidentals to the project site before beginning work.

November 14, 2000

**SUPPLEMENTAL SPECIFICATION**

**SECTION 01315 M**

**PUBLIC INFORMATION SERVICES**

June 13, 2000

Add the following to paragraph 1.3, "Public Information Manager (PIM) Responsibilities"

- I. Is primarily responsible for public information services.
- J. Is not the superintendent and does not have other duties that interfere with the successful accomplishment of public information responsibilities.

Added November 14, 2000

Delete line A of paragraph 3.1, "Construction Traffic Signs," and replace with the following:

- A. Erect signs with the Contractor's Public Information office phone number according to Standard Drawing 745-2A.

January 11, 2000

**SUPPLEMENTAL SPECIFICATION**

**SECTION 01455 M**

**MATERIALS QUALITY REQUIREMENTS**

Add the following to paragraph 1.6 “Samples, Tests, and Referenced Specifications”:

- H. All DEPARTMENT and Consultant/CONTRACTOR materials laboratories, materials test technicians, and construction technician inspectors must be qualified under the requirements of the UDOT Quality Assurance Manual to perform material sampling and testing and construction inspection on State, Federal-Aid, local government and maintenance projects.

January 8, 2002

## **SUPPLEMENT SPECIFICATION**

### **SECTION 01554**

## **TRAFFIC CONTROL**

Delete Section 01554 and replace with the following:

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Traffic Control Plan requirements, and materials and labor necessary for implementation.
- B. Traffic Control Maintainer, and Flagging
- C. Work zone traffic control devices, advance warning arrow panels, and pilot cars.

#### **1.2 RELATED SECTIONS**

- A. Section 00555: Prosecution and Progress.
- B. Section 00725: Scope of Work
- C. Section 00727: Control of Work
- D. Section 01558: Temporary Pavement Markings
- E. Section 02842: Delineators.
- F. Section 02891: Traffic Signs
- G. Section 02765: Pavement Marking Paint

#### **1.3 REFERENCES**

- A. AASHTO Roadside Design Guide, Current Edition
- B. Manual on Uniform Traffic Control Devices (MUTCD), Current Edition
- C. ATSSA: American Traffic Safety Services Association.
  - 1. Quality Standards for Work Zone Traffic Control Devices

- D. NCHRP- Report 350 Recommended Procedures for the Safety Performance Evaluation of Highway Features

#### **1.4 BIDDING REQUIREMENTS**

- A. The apparent low bidder:
1. Submit three copies of the Traffic Control Plan to the Engineer no later than the fourth Wednesday following bid opening. Submit plans in 11 x 17 format prepared using CAD software. All plans must be signed and sealed by a professional engineer licensed in the State of Utah. When available, the Department will provide basemap CAD files in Microstation format to the Contractor on a CD-ROM at no cost.
  2. Attend a mandatory meeting at the time and location as directed by the Engineer:
    - a. Contractor's Traffic Control Designer
    - b. Contractor's Traffic Control Maintainer
    - c. Resident Engineer
    - d. Region Traffic Engineer or designated representative
  3. Ensure compliance with the plans and specifications. Modify plan if necessary to meet all applicable requirements.
  4. The Department will grant no additional contract time for preparing or modifying the Traffic Control Plan.
  5. Do not begin work until the Traffic Control Plan is implemented for that phase of work. Do not implement traffic control until written authorization is received from the Engineer.

#### **1.5 CERTIFICATIONS**

- A. After April 1, 2002 use devices and systems which meet NCHRP-350 Report crash test requirements as defined in the four categories by the Federal Highway Administration. Some exception will be acceptable as stated below.
1. Category 1: cones, tubular marker, delineators, and drums without lights must be certified by the manufacturer as meeting NCHRP-350 Report requirements.

2. Category 2: portable sign stands with signs, Type I, II and III barricades, vertical panels, Category 1 devices with light attachments and devices not expected to cause significant vehicle velocity change. These devices and systems must be certified by FHWA as meeting NCHRP-350 Report test requirements.
3. Category 3: Portable/Temporary pre-cast concrete barrier manufactured after October 1, 2002 must be certified as meeting NCHRP-350 Report test requirements.
  - a. Manufactured date to be stamped into top of each barrier section using a numeric format (ex: 10/2002) with 75 mm X 50 mm numerals, 6 mm deep.
  - b. Portable/Temporary pre-cast concrete barrier manufactured prior to October 1, 2002 and meeting NCHRP 230 may be used until they are no longer serviceable.
4. Category 3: Crash Cushions and Truck Mounted Attenuators must be certified by FHWA as meeting NCHRP-350 Report test requirements.
  - a. The appropriate GREAT CZ, manufactured by Energy Absorption Systems, may be used until they have completed their normal service life.
5. Category 4: Advanced Warning Arrow Panels and portable variable message signs do not have to meet NCHRP-350 Report test requirements.

## **1.6 TRAFFIC CONTROL PLAN REQUIREMENTS**

- A. Design Traffic Control Plan resolving discrepancies between the various standards for traffic control in accordance with Section 00727 Control of Work paragraph 1.5 B and the following:
  1. UDOT Standard Traffic Control Drawings 745-2 Series, UDOT Standard Drawing 745-60, 745-60A, 745-60B, and 745-60D for post mounted signs.
  2. Manual on Uniform Traffic Control Devices (MUTCD) Latest Edition
- B. Follow the requirements and limitations identified in the Traffic Control Special Provision (if included), Section 00555, Prosecution and Progress, paragraph 1.11, Limitation of Operations, Section 00725, Scope of Work, paragraphs associated with the maintaining of traffic and Section 00820 Legal Relations and Responsibility to Public, paragraph 1.10 “Public Convenience and Safety - Traffic and Pedestrians.”
- C. Consider the safe and efficient movement of traffic when lane closures are proposed.

1. Open lanes to traffic wherever and whenever practical.
  2. Minimize and restrict lane closures to the locations and times essential for prosecution of work.
- D. Provide for concrete barrier and attenuation to satisfy hazard mitigation according to UDOT Standard Drawing 745-2 Detail AA, and 745-2E Detail E-1
- E. Provide for delineation and temporary pavement markings and/or removal as needed for traffic control or as required in accordance with this Section, paragraph 1.6, lines H and I.
- F. Provide protection for all hazards (ie: bridge parapets, barrier blunt ends, poles, large equipment to include but not limited to cranes, pile drivers etc.) when hazard is within AASHTO clear zone requirements for approach traffic.
- G. Use the following format and provide the following documentation:
1. Section I: Description of each phase
    - a. List phases, and corresponding bid items and elements of work to be accomplished in each phase.
    - b. Accounting for each contract bid item and element of work, reference the traffic control detail designed to provide for the safe and efficient movement of traffic and safety of workers.
    - c. All contract bid items and elements of work must be identified and included in the phasing.
  2. Section II: CAD generated drawings showing detailed Traffic Control Plan for each phase:
    - a. Adapt Standard Drawings and work zone traffic control examples contained in the MUTCD to reflect actual project conditions such as curves, grades, presence of ramps, intersections and accesses.
    - b. Use basemap CAD files when supplied by the Department as a basis for the Traffic Control Plan drawings.
    - c. Use the same level of detail as in the MUTCD and UDOT Standard Traffic Control Drawings.
    - d. Include the anticipated duration of the traffic control setup used in each phase.
    - e. Provide for the safe passage of pedestrians and bicyclists through the work zone in accordance with the Americans with Disabilities Act and the MUTCD.



- f. Clearly indicate the following:
  - Proposed regulatory speed reductions in accordance with this Section, paragraph 3.6
  - For all tapers: length of taper, device spacing, lane or shoulder closures, amount of lane shift in accordance with this Section, paragraph 3.3 A
  - Length of buffer zone, in accordance with this Section, paragraph 3.3 A
  - Device spacing used in tangents in accordance with this Section, paragraph 3.3 B
  - Lengths of work zones, lane and shoulder widths and area available for vehicle recovery
  - Proposed changes to be made to existing traffic signals including: timing changes, phase changes, etc.
  - Sign locations for required and existing signs.
  - Existing signs that are to be removed, covered, relocated or otherwise changed from the original configuration.
  - Worker parking, work vehicle and equipment access to and from work area, staging and material sites.
- 3. Section III: Emergency and Special Situations
  - a. Identify procedures for dealing with emergencies and special situations.
- H. Provide temporary pavement markings on newly constructed asphalt pavement and refresh as needed until the final surfacing is placed in accordance with Section 01558: Temporary Pavement Markings, as directed by the Engineer.
- I. Completely remove all existing traffic markings that conflict with the Traffic Control Plan, in accordance with Section 02765, paragraph 3.2: Removing Pavement Markings. Do not use paint or other material to cover markings.

## **1.7 TRAFFIC CONTROL MAINTAINER**

- A. Certified by the Department or by the American Traffic Safety Services Association (ATSSA) as a Traffic Control Technician. Certifications are available through:

Associated General Contractors  
1135 South West Temple  
Salt Lake City, Utah.  
Tele: 801-363-2753

American Traffic Safety Services Association (ATSSA),  
15 Riverside Parkway Suite 100  
Fredericksburg, Virginia 22406-1022  
Tele: (800) 272-8772  
Internet: www.atssa.com

- B. Authority:
1. Obtains and uses all labor, equipment, and materials necessary to maintain traffic control.
  2. Changes traffic control operations per the traffic control plan.
- C. Responsibilities and Duties:
1. Oversees all traffic control operations.
  2. Implements the Traffic Control Plan.
  3. Remains available 24 hours a day, seven days a week and can be on-site within 30 minutes of notification.
  4. Corrects deficiencies immediately upon verbal or written notification from the Engineer or representative.
  5. Inspect and document inspections of traffic control on a form acceptable to the Engineer at least four times each day.
    - a. Before beginning of shift.
    - b. At mid-shift.
    - c. Half-hour after evening shift ends.
    - d. At the midpoint of the off-shift period.
  6. Coordinates project traffic control with emergency services and local law enforcement agencies.
  7. Inspect and document inspections of traffic control twice each day when no construction work is being done.
    - a. One during day light hours and one during night time hours
    - b. Conduct inspections a minimum of 8 hours apart
  8. Completes a daily record of traffic control activities using a form acceptable to the Engineer.
  9. Submit to the Engineer inspection and activities forms each week on a day and time acceptable to the Engineer.
  10. Provide a daily report of all planned traffic control activities to the Engineer by 7:00 AM each day. Provide the report each day during the contract.

## **1.8 MAINTENANCE OF WORK ZONE TRAFFIC CONTROL**

- A. Implement and maintain traffic control per the Traffic Control Plan. Implement changes to traffic control required in order to meet UDOT Standard Specifications, Drawings and MUTCD at no additional cost to the Department. Coordinate changes to traffic control and the Traffic Control Plan with the Engineer prior to implementation.
- B. Meet all requirements of this Section, paragraph 1.7 when traffic control devices are required to be in place overnight or on weekends.
- C. Meet the acceptable classification as identified by *Quality Standards for Work Zone Traffic Control Devices* published by American Traffic Safety Services Association (ATSSA) for traffic control devices.
  - 1. Wash devices weekly unless conditions warrant more frequent cleaning.
- D. Maintain traffic control devices during and after all snow plowing operations at no additional cost to the Department. Clear snow away from all traffic control devices so that the devices function as intended.

#### **1.9 WAGE RATES FOR TRAFFIC CONTROL PERSONNEL (FEDERAL AID JOBS ONLY)**

- A. Payment of wages must be as stated below during the time the certified Traffic Control Maintainer, or others involved in setting up or maintaining traffic control devices working under the direction of the certified Traffic Control Maintainer, is on the project site and does any of the following work:
  - 1. Laborer I - for moving traffic control devices by hand; loading or unloading devices on to or off of the truck; and for all hours required to be at the project site except those hours spent in the truck driver classification.
  - 2. Truck Driver - for all hours spent driving on the project site in the performance of the duties required to maintain the traffic control. The rate of pay is determined by the size of vehicle being driven, Pickup Truck being the smallest.

#### **1.10 PAYMENT PROCEDURES**

- A. Partial Payments - Based on the percentage of the project completed, excluding the cost of traffic control.

- B. Price Adjustments:
1. The Department reduces payment when traffic control is not in compliance with the Traffic Control Plan, or when the contractor fails to meet all requirements cited or referenced in this specification.
    - a. The amount per day by which the Contractor's compensation will be reduced is calculated using the daily charge for Calendar Day in the Schedule of Liquidated Damages in Table 1 of Section 00555 or the Contract lump sum bid price for Traffic Control divided by the number of contract days, whichever is greater.
  2. A Stop Work order issued due to non-compliance with this specification is not considered to be an authorized suspension of contract time. Contract time will continue to accrue as defined Section 00555, paragraph 1.14 "Determining Contract Time."
- C. Include in the bid item "Traffic Control" all materials, equipment, labor, flagging, pilot car, temporary pavement markings and/or removal and workmanship required for the design, implementation and maintenance of the Traffic Control Plan.
- D. Provide the Engineer in writing with a detailed analysis showing impacts to traffic control caused by extra work that necessitates modification to the Traffic Control Plan. Negotiate and agree to either a lump sum price for additional Traffic Control or agree to unit prices to be used for additional Traffic Control measures or devices required, prior to performing the extra work.

## **PART 2 PRODUCTS**

### **2.1 PILOT CAR**

- A. Equip with a reflectorized sign:
1. Comply with Section 02891: Traffic Signs
  2. MUTCD sign G20-4
- B. Equip with a minimum two rotating lights or strobe lights.
1. Minimum 100 mm diameter and minimum 1830 mm mounting height
  2. Yellow color

### **2.2 FLAGGER EQUIPMENT AND CLOTHING**

- A. Comply with to the Department's "Flagger Training Handbook"

- B. Comply with Standard Drawings 745-1
- C. Clothing:
  - 1. Flagger vest and hard hat: Orange, red-orange, or fluorescent version of these colors with:
    - a. Minimum 83870 mm<sup>2</sup> each on the front and back of strong yellow-green reflective tape, or
    - b. Minimum of 41935 mm<sup>2</sup> each on the front and back of strong yellow-green non-reflective tape, with 41935 mm<sup>2</sup> white reflective tape placed on both sides of the non-reflective tape on the front and back.
    - c. Orange or fluorescent orange hard hat with 6450 mm<sup>2</sup> of white or strong yellow-green reflective tape placed around the base of the hard hat and visible to traffic.

## **2.3 TRAFFIC CONTROL SIGNING AND DEVICES**

- A. Signs:
  - 1. Comply with paragraph 1.5
  - 2. Comply with Section 02891, Traffic Signs
  - 3. Comply with Standard Drawing 745-1
  - 4. Comply with Standard Drawings 745-60, 745-60A, 745-60B, and 745-60D when using post mounted signs
- B. Channelizing Devices:
  - 1. Comply with paragraph 1.5
  - 2. Comply with Standard Drawing 745-1
    - a. Comply with Section 02891, paragraph 2.1 E Reflective Sheeting
    - b. Use construction orange tubular markers and cone during daylight hours only.
- C. Precast Concrete Barrier:
  - 1. Comply with paragraph 1.5
  - 2. Comply with UDOT Standards Drawing 745-2 Detail AA and 745-2E Detail E-1

3. Use an approved construction zone attenuator or permanent style end sections, as listed in UDOT Guidelines for Attenuators and End Section.
    - a. Use a construction zone attenuator when approach ends of temporary precast barrier are within AASHTO clear zone.
      - Use AASHTO Roadside Design Guide to determine proper clear zone distance requirements
      - Install attenuators or end sections as per UDOT Standard Drawings 735-1 series and manufactures recommendations.
  4. Do not use a truck mounted attenuator (TMA) to protect temporary precast barrier end for more than 24 hours. Use properly rated TMA as directed in this Section, paragraph 2.3, D.
- D. Use properly rated truck mounted attenuator for the posted speed limit prior to construction.
1. NCHRP-350 Test Level 2 for speeds 45 mph or less
  2. NCHRP-350 Test Level 3 for speeds greater than 45 mph.

## **2.4 ADVANCE WARNING ARROW PANEL**

- A. Advance Warning Device:
1. Meet all standards as specified in the MUTCD, Section 6F.53 Arrow Panels.
  2. Perform all functions as specified in UDOT Standard Drawing 745-1 and the MUTCD

## **PART 3 EXECUTION**

### **3.1 MODIFICATION OF TRAFFIC CONTROL PLANS**

- A. Each phase of construction must use an authorized Traffic Control Plan. If a construction phase is proposed that is not covered by the Traffic Control Plan, submit a proposed plan to the Engineer for review.
1. Submit proposed plans to the Engineer 10 working days before the Traffic Control Plan is to be implemented.
  2. Do not begin work until the new Traffic Control plan is authorized for use, and has been fully implemented.
  3. Implement changes required to meet UDOT Standard Specifications, Standard Drawings and MUTCD at no additional cost to the Department.
    - a. Comply with this Section, paragraph 1.4 A 1

### **3.2 FLAGGING**

- A. Flaggers must have a current flagging certificate and must present proof of certification upon request by the Department.
  - 1. Acceptable certifications
    - a. UDOT Contractor Certification (Utah Valley State College)
    - b. American Traffic Safety Services Association (ATSSA)

### **3.3 TRAFFIC CONTROL SIGNING AND DEVICES**

- A. Use posted speed limit prior to construction to compute sign spacing, taper lengths, buffer zones and construction clear zone.
  - 1. Use plastic drums for lane closure taper devices for speeds 50 mph and greater.
  - 2. Do not use cone or tubular markers at night
- B. Use posted speed during construction to compute the tangent spacing for channelizing devices.
- C. Remove all traffic control from site of work when not required within 24 hours.
  - 1. Remove traffic control devices from the roadway a distance twice that of the Construction Clear Zone (Table 1 Standard Drawing TD 2A) if they will be used within 24 hours of the daily work stoppage and are not required for immediate traffic control.
    - a. Obtain written permission from property owner prior to storing traffic control devices on private property.
  - 2. Cover post mounted signs when directed by Engineer.
    - a. Cover signs completely with an opaque and durable covering

### **3.4 ADVANCE WARNING ARROW PANEL**

- A. May substitute Type C units for Type B units.
  - 1. Comply with UDOT Standard Drawing 745-1
- B. Do not substitute Type B units for Type C units.
- C. Remove Advance Warning Arrow Panel from the site of work when not needed for the control of traffic within a 4 hour period.

### **3.5 TRAFFIC SIGNALS**

- A. Use uniformed police officer when construction activities are impacting an operating signalized intersection.
- B. Use of flaggers at traffic signals permitted when the signals have been turned to red flash mode.
  - 1. Each approach is to be controlled by a separate flagger(s).
    - a. Flaggers can control only two lanes of approach traffic
      - third lane control permitted when left or right turns bays present
- C. Changes to traffic signal operations will be done by the Department.

### **3.6 CONSTRUCTION ZONE SPEED LIMIT REQUIREMENTS**

- A. Obtain approval from the Engineer for regulatory speed reductions.
  - 1. See Standard Drawing 745-2, General Note 9
  - 2. Use speed reduction only when construction activities impact traffic.
  - 3. Restore regulatory speed limit at locations where construction activities are not impacting traffic.
  - 4. See Standard Drawing 745-60, 745-60A, 745-60B, 745-60D for post mounted sign requirements

END OF SECTION



**SUPPLEMENTAL SPECIFICATION**

**SECTION 01558**

**TEMPORARY PAVEMENT MARKINGS**

Delete Section 01558 and replace with the following:

**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

- A. Materials and procedures for installation of temporary pavement markings.

**1.2 RELATED SECTIONS**

- A. Section 01554: Traffic Control
- B. Section 02765: Pavement Marking Paint
- C. Section 02842: Delineators

**1.3 REFERENCES**

- A. ASTM D 4592
- B. ASTM D-4956

**PART 2 PRODUCTS**

**2.1 PAVEMENT MARKING PAINT AND GLASS BEADS**

- A. Refer to Section 02765.
- B. Accepted upon approval of the weights and analysis stated on the containers.

**2.2 PAVEMENT MARKING TAPE**

- A. ASTM D 4592, Type I (Removable)
- B. Minimum reflective values:

1. ASTM D 4592

## **2.3 RAISED PAVEMENT MARKERS**

- A. Provide plastic raised pavement markers having reflective material with clear cover(s) as needed for the particular application.
  1. Marker body to be manufactured of polyurethane plastic in color specified for required type.
    - a. Width 100 mm, height 50 mm, thickness 1.5 mm
  2. Reflective sheeting to be a minimum area of 960 mm<sup>2</sup>. Sheeting to meet ASTM D-4956 Type 1 material minimum.
  3. Provide clear polyvinyl chloride covers attached to marker body with heavy duty staples when appropriate for the particular application or work operation.
  4. Marker to be supplied with a method of attaching to pavement surface.
- B. Raised Pavement Marker Types
  1. Type Y1, yellow body with yellow reflective sheeting on both sides.
    - a. Optional: Type B1, black body with yellow reflective sheeting on both sides.
  2. Type W1, white body with white reflective sheeting on both sides.  
Optional: Type B2, black body with white reflective sheeting on both sides.

## **PART 3 EXECUTION**

### **3.1 GENERAL**

- A. Apply temporary pavement markings along the entire length of any roadway surfaces opened to traffic.
  1. Apply edge markings when and where delineation is removed or nonexistent.
  2. Broken line pavement markings are 1 m long, spaced on a 12 m cycle length.
- B. Follow Preparation requirements in Section 02765, Paragraph 3.1.
- C. Use channelizing devices, or other delineation as directed by the Engineer, to indicate road user paths in work zones when it is not possible to provide a clear path with temporary pavement markings.

- D. Place transverse marking, using pavement marking tape (100 mm x 600 mm), across exposed joint for pavement vertical grade separation greater than 25 mm.
  - 1. Place markings on a 7.6 m spacing.

### **3.2 PAVEMENT MARKING PAINT AND GLASS BEADS**

- A. Apply Pavement Marking Paint at the following rates:
  - 1. 100 mm solid line at 38.5 to 41.0 m/L.
  - 2. 100 mm by 1 m broken line at 515 to 545 m/L.
- B. Apply glass beads at a minimum 2.7 kg/L of paint, over full length and width of lines and pavement markings.
- C. Re-apply Pavement Marking Paint at two week intervals, or at a frequency as directed by the Engineer, in order to maintain markings that provide a clear path during night and twilight periods and wet pavement conditions.

### **3.3 PAVEMENT MARKING TAPE**

- A. Apply Pavement Marking Tape in accordance with manufacturer's directions.
- B. Maintain or re-apply Pavement Marking Tape in order to maintain markings that provide a clear path during night and twilight periods and wet pavement conditions.
- C. Inspect in accordance with Section 01554, Paragraph 1.7, Line C., and replace any loose, missing or damaged pavement markings immediately.
- D. Remove the tape immediately before paving.

### **3.4 RAISED PAVEMENT MARKERS**

- A. Attach raised pavement marker as per manufactures recommendations.
- B. Space raised pavement markers as follows:
  - 1. Solid line: on 1.5 m centers.
  - 2. Broken line: two on 1 m centers spaced on a 12 m cycle length.
- C. Inspect in accordance with Section 01554, Paragraph 1.7, Line C., and replace any loose, missing or damaged markers immediately.

- D. Remove markers immediately before paving.

END OF SECTION

September 12, 2000

**SUPPLEMENTAL SPECIFICATION**

**SECTION 01561 M**

**TEMPORARY ENVIRONMENTAL FENCE**

Delete line B of paragraph 1.4, "Delivery, Storage, and Handling," and replace with the following:

- B. When a fence or its components is to remain in place in areas designated for the vegetation establishment period, it becomes the property of the DEPARTMENT. Refer to Section 02936.

August 14, 2001

**SUPPLEMENTAL SPECIFICATION**

**SECTION 02056 M**

**COMMON FILL**

January 11, 2000

Add the following to paragraph 1.2 “Related Sections”:

D. Section 02324: Compaction.

August 14, 2001

Delete Table 1 in Part 2, article, “Sand,” and replace with the following:

**Table 1**

<b>Sand</b>		
<b>Sieve Size</b>	<b>Percent Passing (by weight)</b>	
	<b>Min</b>	<b>Max</b>
9.5 mm	100	--
150 mm	--	10

August 14, 2001

## **SUPPLEMENTAL SPECIFICATION**

### **SECTION 02075**

## **GEOTEXTILES**

Delete Section 02075 entirely and replace with the following:

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Materials and procedures for installing geotextiles of the type(s) shown on the drawings, and at other locations as directed by the ENGINEER.

#### **1.2 RELATED SECTIONS**

- A. Section 01571: Temporary Environmental Controls.

#### **1.3 REFERENCES**

- A. AASHTO M 288: Geotextile Specifications for Highway Applications.
- B. ASTM D 4791: Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.

#### **1.4 SUBMITTALS**

- A. Submit prior to use: Manufacturer's certificate that each fabric complies with requirements of this Section.

#### **1.5 SAMPLING AND TESTING**

- A. Follow UDOT Minimum Sampling and Testing Requirements. Prior to shipment, test each individual shipment and lot of geotextile. Testing reports will accompany shipment to the job site. Clearly label all rolls as being part of the same production run certified as meeting all material requirements.

#### **1.6 PACKAGING, SHIPPING, AND STORING**

- A. Protect the geotextile from direct sunlight, chemicals, mud, dirt and debris during shipment and storage. Replace at the Contractor's sole expense, any geotextile damaged or deteriorated during shipping, storage or construction.
- B. Labeling and Tagging:
  - 1. Identify each package by a tag or label securely affixed to the outside of the roll on at least one end.
  - 2. Provide the following required information on the tag:
    - a. Name of the geotextile manufacturer
    - b. Brand name of the product, width, length, and package weight of geotextile
    - c. Orange UDOT Certification sticker

## **1.7 ACCEPTANCE**

- A. DEPARTMENT will reject the geotextile at installation if it has defects, rips, holes, flaws, deterioration, or damage incurred during manufacture, transport, handling or storage.
- B. Basis for Rejection: Includes non-compliance with UDOT Minimum Sampling and Testing Requirements.

## **PART 2 PRODUCTS**

### **2.1 SILT FENCE GEOTEXTILE**

- A. Refer to Section 01571.

### **2.2 EROSION CONTROL GEOTEXTILE**

- A. Furnish as specified in AASHTO M 288.

### **2.3 DRAINAGE GEOTEXTILE**

- A. Furnish non-woven drainage geotextile as specified in AASHTO M 288 with in-situ soil designations as shown on the drawings or as indicated by the ENGINEER.

### **2.4 SEPARATION GEOTEXTILE**

- A. Furnish as specified in AASHTO M 288.



## **2.5 STABILIZATION GEOTEXTILE**

- A. Furnish as specified in AASHTO M 288.

## **2.6 WEED BARRIER GEOTEXTILE**

- A. Furnish non-woven weed barrier geotextile with elongation less than 50 percent for all weed barrier applications as specified in AASHTO M 288.

## **2.7 POSTS FOR SILT FENCE**

- A. Refer to Section 01571, Part 2, paragraph, "Silt Fence."

# **PART 3 EXECUTION**

## **3.1 GENERAL**

- A. Place geotextile on areas that are smooth, and free of projections or depressions. Do not drag the geotextile across the subgrade; but roll out as smoothly as possible in the direction of vehicle travel.
- B. Do not operate construction equipment or traffic directly on geotextile.
- C. When placed for construction, cover the geotextile with indicated cover material as soon as possible. Do not leave uncovered for more than 5 days.
- D. Place cover material on the geotextile in a manner that the geotextile is not torn, punctured, or shifted. Use a minimum 150 mm thick cover layer, or twice the maximum aggregate size (whichever is thicker). End-dumping cover material directly on the geotextile is not permitted, except as a starter course.
- E. Limit construction vehicles in size and mass so rutting in the initial layer above the geotextile is not more than 75 mm deep, or half the layer thickness (whichever is lesser). Turning of vehicles on the first layer is not permitted.

## **3.2 INSTALLING SILT FENCE GEOTEXTILE**

- A. Refer to Section 01571, Part 3, paragraph: Installation.

### **3.3 INSTALLING EROSION CONTROL GEOTEXTILE**

- A. Install at locations shown on the drawings.
- B. Unless otherwise specified, overlap the geotextile a minimum of 0.6 m at all longitudinal and transverse joints, or sew the geotextile. For sewing requirements, refer to this Section, paragraph, "Sewing."
- C. If overlapped, place the geotextile so that the upstream sheet overlaps the downstream sheets.
- D. For placement on slopes, overlap each sheet over the next downhill sheet.
- E. Anchor the geotextile using key trenches or aprons at the crests and toes of the slope.
- F. Pins, usually 450 mm in length may be helpful in securing the geotextile during installation.
- G. Repair: Place patch over damaged area and extend 0.9 m beyond the perimeter of the tear or damage.

### **3.4 INSTALLING DRAINAGE GEOTEXTILE FOR SUBSURFACE DRAINAGE**

- A. Excavate trench to size and depth indicated.
- B. Cut geotextile to width required and place in trench. Prevent damage to geotextile.
- C. Overlap geotextile 300 mm or the full width of the trench, whichever is less, at the top of the trench.
- D. Overlap successive sheets of geotextile a minimum of 300 mm in the direction of flow.
- E. Place fill beginning with the sheet(s) overlapped above subsequent sheet(s), to hold geotextile in place.
- F. Repair any damage to geotextile by placing patches extending 0.9 m in all directions beyond the damaged area.

### **3.5 INSTALLING SEPARATION GEOTEXTILE**

- A. Install for pavement sections or other applications at locations shown on the drawings.
- B. Unless otherwise specified, overlap the geotextile a minimum of 0.3 m at all longitudinal and transverse joints, or sew the geotextile. For sewing requirements, refer to this Section, paragraph, "Sewing."
- C. Repair: Place patch over damaged area and extend 0.9 m beyond the perimeter of the tear or damage.
- D. Place fill, beginning with the sheet(s) overlapped above subsequent sheet(s), to hold geotextile in place.
- E. Pins, usually 450 mm in length, may be helpful in securing the geotextile during installation.

### **3.6 INSTALLING STABILIZATION GEOTEXTILE**

- A. Install Stabilization Geotextile at locations shown on the drawings, or as designated by the Engineer.
- B. Unless otherwise specified, overlap the geotextile a minimum of 0.6 m at all longitudinal and transverse joints, or sew the geotextile. For sewing requirements, refer to this Section, paragraph, "Sewing."
- C. For placement on slopes, overlap each sheet over the next downhill sheet.
- D. Repair: Place patch over damaged area and extend 0.9 m beyond the perimeter of the tear or damage.
- E. Place fill, beginning with the sheet(s) overlapped above subsequent sheet(s), to hold geotextile in place.
- F. Pins, usually 450 mm in length, may be helpful in securing the geotextile during installation.

### **3.7 INSTALLING WEED BARRIER GEOTEXTILE**

- A. Preparation:
  - 1. Remove sharp objects, large stones and undesirable vegetation.

2. If placing geotextile over existing bed, cut an "X" over each plant and push geotextile under plant base. If placing over new bed, roll geotextile over soil and cut an "X" for each plant hole. Fold excess geotextile under and cover with specified landscaping materials.
- B. Surface Cover: Provide a minimum of 100 mm of cover on all areas on the geotextile unless otherwise specified by ENGINEER. If using large landscape rock, increase thickness of cover material over geotextile up to 3 times the diameter of the largest rock material based on ENGINEER's recommendations. Do not leave any portion of geotextile exposed to direct sunlight.
- C. Repair: Repair immediately. Clear the damaged area plus an additional 0.9 m and apply geotextile patch.
- D. Maintenance: Maintain surfaces and supply additional landscape materials where necessary, including areas affected by erosion.

### **3.8 SEWING**

- A. Perform sewing (seaming) as specified in AASHTO M 288, Section A1-4.

END OF SECTION

March 13, 2001

**SUPPLEMENTAL SPECIFICATION**

**SECTION 02317 M**

**STRUCTURAL EXCAVATION**

Add the following to Part 1 General:

**1.3 PAYMENT PROCEDURES**

- A. DEPARTMENT will make no separate payment for Structural Excavation. Include in associated bid items.

February 8, 2000

## **SUPPLEMENTAL SPECIFICATION**

### **SECTION 02324 M**

## **COMPACTION**

Delete line A of paragraph 1.1 and replace with the following:

#### **1.1 SECTION INCLUDES**

- A. Compaction of fill material for embankment foundations, areas through cuts, embankments, dikes, backfill, and other materials.

Delete paragraph 1.2 and replace with the following:

#### **1.2 REFERENCES**

- A. AASHTO T 99: Moisture-Density Relations of Soils Using a 2.5 kg (5.5 lb.) Rammer and a 305 mm (12 in.) Drop. (Method D)
- B. AASHTO T 180: Moisture-Density Relations of Soils Using a 4.54 kg (10 lb.) Rammer and a 457 mm (18 in.) Drop. (Method D)
- C. AASHTO T 238: Density of Soil and Soil-Aggregate In-Place by Nuclear Methods (Shallow Depth).
- D. AASHTO T 239: Moisture Content of Soil and Soil Aggregate In-Place by Nuclear Methods (Shallow Depth).

**SUPPLEMENTAL SPECIFICATION**

**SECTION 02610**

**PIPE CULVERTS**

Delete Section 02610 entirely and replace with the following:

**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

- A. Materials and procedures for installing pipe culvert.
- B. Class, type, size, and thickness designations.
- C. Coating for pipe culvert.

**1.2 RELATED SECTIONS**

- A. Section 00820: Legal Relations and Responsibility to Public.
- B. Section 02317: Structural Excavation.
- C. Section 02330: Embankment.
- D. Section 03055: Portland Cement Concrete.
- E. Section 03310: Structural Concrete.

**1.3 REFERENCES**

- A. AASHTO M 36M: Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains.
- B. AASHTO M 55: Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.
- C. AASHTO M 86M: Concrete Sewer, Storm Drain, and Culvert Pipe.
- D. AASHTO M 170: Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.

- E. AASHTO M 190: Bituminous Coated Corrugated Metal Culvert Pipe and Pipe Arches.
- F. AASHTO M 196M: Corrugated Aluminum Pipe for Sewers and Drains.
- G. AASHTO M 197M: Aluminum Alloy Sheet for Corrugated Aluminum Pipe.
- H. AASHTO M 198M: Circular Concrete Sewer and Culvert Pipe Using Flexible Watertight Gaskets.
- I. AASHTO 207: Reinforced Concrete Elliptical Culvert, Storm Drain and Sewer Pipe.
- J. AASHTO M 243: Field Applied Coating of Corrugated Metal Structural Plate for Pipe, Pipe Arches, and Arches.
- K. AASHTO M 245M: Corrugated Steel Pipe, Polymer Precoated, for Sewers and Drains.
- L. AASHTO M 246M: Steel Sheet, Metallic-Coated and Polymer Precoated for Corrugated Steel Pipe.
- M. AASHTO M 274M: Steel Sheet, Aluminum - Coated (Type 2), For Corrugated Steel Pipe.
- N. AASHTO M 294M: Corrugated Polyethylene Pipe, 300- to 1200-mm Diameter.
- O. AASHTO M 304M: Polyvinyl Chloride (PVC) Profile Wall Drain Pipe and Fittings Based on Controlled Inside Diameter.
- P. AASHTO Standard Specifications for Bridge Construction.
- Q. ASTM A 849: Post-Applied Coatings, Pavings, and Linings for Corrugated Steel Sewer and Drainage Pipe.
- R. ASTM C 923M: Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals.
- S. ASTM D 3212: Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
- T. ASTM F 477: Elastomeric Seals (Gaskets) for Joining Plastic Pipe.



## **PART 2      PRODUCTS**

### **2.1      PIPE CULVERT CLASSES**

- A.    Pipe Culvert Classes:
  - 1.     Class A:      Pipe used in mostly non-reactive soils, and which require no special materials, treatment, or coating.
  - 2.     Class B:      Pipe used in moderately reactive and corrosive soils.
  - 3.     Class C:      Pipe used in soils which are highly reactive and corrosive.
  - 4.     Class D:      Untreated structural plate pipe used in mostly non-reactive and non-corrosive soils.
  - 5.     Class E:      Structural plate pipe used in highly reactive and corrosive soils.
  
- B.    Pipe Culvert Class Substitutions: May be made at no additional cost to the DEPARTMENT.
  - 1.     Class B and C may be substituted for Class A.
  - 2.     Class C may be substituted for Class B or A.
  - 3.     Class E may be substituted for Class D.
  
- C.    Refer to Table 1.

**Table 1 AASHTO Reference Specifications for Pipe Culverts**

Pipe Culvert Type		Pipe Culvert Class				
		A	B	C	D	E
<b>Substitutions: Class B and C may be substituted for Class A, Class C may be substituted for Class B or A, Class E may be substituted for Class C.</b>						
<b>1.0</b>	<b>Corrugated Pipe Culverts and Pipe Arch Culverts:</b>					
1.1	Corrugated steel pipe.	M 36M	M 36M Asphalt Coating (Type A) M 190M OR Polymeric Coating 0 µm (inside) / 250 µm (outside) M 245M & M 246M ASTM A 849 OR Aluminized Type II Steel M 274M (See Footnote 2)	M 36M Asphalt Coating (Type A) M 190M OR Polymeric Coating 250 µm (inside)/250 µm (outside) M 245M & M 246M ASTM A 849	N/A	N/A
1.1(a)	Corrugated steel pipe arch. (See Footnote 1)					
1.2	Corrugated aluminum pipe.	M 196M	M 196M	M 196M	N/A	N/A
1.2 (a)	Corrugated aluminum pipe arch. (See Footnote 1)	M 197M	M 197M	M 197M		
1.3	Corrugated polyethylene (HDPE) pipe	M 294M Cell class # 335420C ASTM D 3350	M 294M Cell class # 335420C ASTM D 3350	M 294M Cell class # 335420C ASTM D 3350	N/A	N/A
<b>2.0</b>	<b>Smooth-Lined Pipe Culverts and Pipe Arch Culverts:</b>					
2.1	Concrete lined corrugated steel pipe  (Use Type V cement. Refer to Section 03055)	M 36M	M 36M Asphalt Coating (Type A) M 190M OR Polymeric Coating 250 µm (inside) /250 µm (outside) M 245M & M 246M ASTM A 849	M 36M Asphalt Coating (Type A) M 190M OR Polymeric Coating 250 µm (inside) /250 µm (outside) M 245M & M 246M ASTM A 849	N/A	N/A
2.2	Smooth lined polyethylene pipe.	M 294M Cell Class # 334433C and 335434C	M 294M Cell Class # 334433C and 335434C	M 294M Cell Class # 334433C and 335434C	N/A	N/A

		ASTM D3350	ASTM D3350	ASTM D3350		
2.3	Smooth lined Poly Vinyl Chloride (PVC) pipe	M 304M Cell Class # 12454C ASTM T 1784	M 304M Cell Class # 1245C ASTM T 1784	M 304M Cell Class # 1245C ASTM T 1784	N/A	N/A
2.4 2.4 A	Asphalt smooth lined corrugated steel pipe Pipe arch	M 36M	M 36M Asphalt Coating (Type D) M 190M	M 36M Asphalt Coating (Type D) M 190M	N/A	N/A
2.5 2.5 a	Spiral rib steel pipe  Spiral rib steel pipe arch	M 36M	M 36 M Asphalt Coating (Type A) M 190M OR Polymeric Coating 0µm (inside) / 250 µm (outside) M 245M and M 246M, ASTM A 849 OR Aluminized Type II Steel M 274M (See Footnote 2)	M 36 M Asphalt Coating (Type A) M 190M OR Polymeric Coating 250 µm (inside)/250 µm (outside) M 245M and M 246M ASTM A 849	N/A	N/A
2.6	Spiral rib aluminum pipe and pipe arch	M 196& and M 197M	M 196& and M 197M	M 196& and M 197M	N/A	N/A
2.7	Reinforced concrete pipe	M 170M Type II Cement	M 170M Type II Cement	M 170M Type V Cement	N/A	N/A
2.8	Non-reinforced concrete pipe	M 170M Type II Cement	M 170M Type II Cement	M 86M Type V Cement	N/A	N/A
2.9	Elliptical reinforced concrete pipe	M 207M Type II Cement	M 207M Type II Cement	M 207M Type V Cement	N/A	N/A
<b>3.0</b>	<b>Structural Plate Pipe and Pipe Arch Culverts</b>					
3.1	Structural steel plate pipe culverts and pipe arch	N/A	N/A	N/A	M 167M	M 167M M 243M
3.2	Aluminum alloy structural plate pipe culverts and pipe arch	N/A	N/A	N/A	M 219M	M 219M
<b>Footnotes:</b>						

- |     |  |
|-----|--|
| (1) | Minimum corner radii conforming to the details shown on the standard drawings.   |
| (2) | Acceptable soil conditions, Class B, Aluminized Type II steel are 1.6 mm minimum thickness of metal acceptable where pH is greater than 5.5 and less than 8.5 and soil resistivity is greater than 1500 ohm-centimeters. |

## **2.2 PIPE CULVERT TYPES**

- A. Pipe, Pipe Arch, Structural Plate Pipe and Structural Plate Pipe Arch Culvert Types: Refer to Table 1.

## **2.3 RELATED PRODUCTS**

- A. Asphalt Coating: Furnish Material Class M-Mastic, either asphalt or tar base, cold applied. ASTM A 849.
  - 1. Asphalt base mastic design criteria:
    - a. Functions as a cool-applied waterproofing membrane.
    - b. Provides a protective coating to aluminum or steel highly resistant to corrosion and chemical fumes.
    - c. Is not affected by freezing temperatures and does not flow in hot weather.
    - d. Has high cohesive strength and readily hardens in to a tough elastic seal after application.
    - e. Is mixed until the mineral stabilizers and fillers are uniformly dispersed. Follow AASHTO M 243 M.

## **2.4 PIPE SELECTION**

- A. At the preconstruction conference, declare choice of pipe, type, diameter and thickness to be used.
- B. Use the same type and strength of concrete pipe or thickness of steel, aluminum, polyethylene or polyvinyl chloride (PVC) pipe for the entire run of pipe.
- C. Use the maximum height of cover to determine the strength or thickness. Refer to Standard Drawings 605-1, 605-2, and 605-3.
- D. Do not use aluminum pipe culvert when a paved invert is required, unless protective measure are taken. Follow 3.7 - C.
- E. Corrugated and smooth-lined polyethylene pipes and PVC pipes: Use only 300 mm to 900 mm diameter.
- F. Precast, non-reinforced concrete pipe: Use only 450 mm to 900 mm diameter.
- G. Do not allow pipes of different types of metal to contact each other. Use matching materials to make direct extensions of existing pipes.

- H. Do not use pipe containing longitudinal lap seams if watertight pipe or watertight joints are called for.
- I. Do not use thermoplastic pipe manufactured without UV inhibitors approved by the Materials Engineer in applications subject to direct sunlight.

## **PART 3 EXECUTION**

### **3.1 PREPARATION**

- A. Excavating, Trenching, Bedding and Backfill:
  - 1. Refer to Section 02317.
  - 2. Refer to Standard Drawings 605-4, 605-5, and 605-8.
  - 3. Comply with Utah Occupation Safety and Health regulations when excavating and trenching. Note safety restrictions for trenches deeper than 1.2 meters. Follow Section 00820.
  - 4. Use Type I bedding unless Type II or Type III is required due to foundation conditions.

### **3.2 INSTALLATION**

- A. Lay culvert starting at the downstream end.
- B. Keep the bottom of the culvert in contact with the bedding throughout its length.
- C. When indicated on the drawings, camber pipe culverts upward from a chord through the inlet and outlet inverts an ordinate amount equal to one percent of the pipe length. Develop camber on a parabolic curve. If the mid-point elevation on the parabolic curve as designed exceeds the elevation of the inlet invert, reduce the amount of camber or increase the pipe culvert gradient.
- D. Place bell or socket end of culvert facing upstream.
- E. Place culverts fabricated with longitudinal laps or seams so that such seams are located approximately 45 degrees away from the invert or crown.
- F. Place paved invert or partially lined culvert so that the centerline of the paved segment matches the flow line.
- G. Place elliptical culvert with the major axis within 5 degrees of a vertical plane through the longitudinal axis of the culverts.
- H. Place outside circumferential laps of flexible corrugated (annular corrugations) culvert facing upstream.

- I. Close the joints to meet the specified joint integrity in accordance with manufacturer's recommendations.
- J. Install pipe to conform to AASHTO Standard Specifications for Highway Bridges:
  - 1. Section 26 for Corrugated Metal Pipe
  - 2. Section 27 for Concrete Pipe
  - 3. Section 30 for Thermoplastic Pipe

### **3.3 JOINTS OR COUPLING BANDS FOR CULVERTS**

- A. General:
  - 1. All joints must sustain 20 kPa minimum pressure.
  - 2. Connection of culvert to concrete headwalls, catch basins, etc. must also comply with manufacturer's recommended installation practices.
- B. Concrete Culverts:
  - 1. Meet AASHTO M 198M.
- C. Metal Pipe:
  - 1. Use standard joints or coupling bands unless special joints or special coupling bands are called for on the plans. Refer to Standard Drawing 605-6.
  - 2. Conform to AASHTO Standard Specifications for Highway Bridges and AASHTO M 36M or AASHTO M 245M with the following modifications:
    - a. Use connecting bands of the same class as the pipe. Maintain a minimum thickness of 1.6 mm for the connecting bands.
    - b. Use bands with projections (dimple bands) only in extension of the existing pipes where annular corrugations do not exist.
    - c. The ends of helically corrugated pipe must be re-rolled to form at least two full annular corrugations each before being joined.
    - d. Use flat bands only when approved in writing by the ENGINEER.
    - e. Follow Standard Drawing 605-6.
- D. Joints for Polyethylene (HDPE) Pipe Culverts: Unless otherwise specified, use standard joints conforming to Section 7 "Requirements," and Section 9 "Test Methods" of AASHTO M 294M.
- E. Joints for PVC Pipe Culverts: Show no leakage when tested in accordance with ASTM D3212.
  - 1. Meet ASTM F 477 for gaskets.

### **3.4 WATERTIGHT CULVERTS AND JOINTS**

- A. Provide watertight joints as follows:
  - 1. Pass AASHTO M 86M paragraph 10.6 test requirements by sustaining a 70 kPa minimum pressure for a 10 minute period with no leakage observed.
- B. Use one of the following water tight culverts:
  - 1. Reinforced and non-reinforced concrete pipe. Meet AASHTO M 198M for watertight rubber gaskets. Do not use elliptical pipe. Meet ASTM C 443.
  - 2. Corrugated metal pipe culvert (O-ring gasket placed in lock seam).
  - 3. Helical rib metal pipe (O-ring gasket placed in lock seam).

### **3.5 SMOOTH LINING FOR CORRUGATED STEEL PIPE AND PIPE ARCH CULVERTS**

- A. Clean all surfaces to be lined including removal of all oil and grease from the metal. Allow the surface to dry before proceeding.
- B. Concrete Lining: Follow ASTM A 849, Subsections 5 and 9.
- C. Asphalt Lining: Follow Table 1.

### **3.6 PIPE AND PIPE ARCH CULVERTS**

- A. Use materials described in Table 1.
- B. Remove moisture, dirt, oil, un-bonded or incompatible paint, grease residual oil, alkalies, or other foreign matter from the surface to be coated.
- C. Spray or brush-coat all aluminum culvert contacting concrete with an asphalt mastic or tar base material to a minimum thickness of 1.25 mm.

### **3.7 STRUCTURAL PLATE PIPE AND PLATE PIPE ARCH CULVERTS**

- A. Use materials described in Table 1.
- B. Repair or replace all damaged plates or coatings before installation.
- C. Installation: Follow Standard Drawings 605-4, and 605-5.  
Embankment: Refer to Section 02330.
- D. Assembly:



1. Give the ENGINEER a copy of the detail plan showing the position of each plate and the assembly order.
  2. Follow the manufacturer's instructions.
  3. Clearly mark each modified plate, designating its position in the finished structure.
  4. Place outside circumferential pipe-laps facing upstream.
  5. Attain approved seam fit-up. All bolts must be in place and have a torque ranging from 70 N·m to 140 N·m for aluminum pipe and 140 N·m to 410 N·m for steel pipe.
  6. Form structural plates so that the finished pipe is elliptical in shape with the vertical diameter approximately 5 percent greater than the nominal diameter.
- E. Asphalt Coating (structural plate pipe, and plate pipe arch, and arches):
1. Thoroughly clean all plates to be coated. Remove any oil or grease from the surface of the plates. Keep plates clean and dry prior to coating.
  2. Apply coating to dry plates:
    - a. Spray or brush-coat the entire exterior surface of the culverts with an approved post-applied mastic coating to a minimum 2 mm wet thickness. Follow AASHTO M 243.
    - b. Spray or brush-coat the inside invert for 1/4 of the circumference of round pipe and the full span width of pipe arch with the same compound.
    - c. Spray or brush coat all metal surfaces in contact with the ground at the time of erection before assembly. The remaining surfaces may be treated after erection.
  3. Apply uniformly to a minimum thickness of 1.5 mm dry thickness to structural plate for pipe, pipe arches, or arches on inside and outside surfaces measured on the crest of the corrugations.
  4. Furnish as follows, according to the application used:
    - a. Spraying consistency: Spray with an air gun without the use of additional thinners when temperatures are 4 degrees C and above.
    - b. Troweling consistency: Apply with a knife or trowel.
    - c. Brushing consistency: Apply with an ordinary roofing brush.

### **3.8 INVERT PROTECTION**

A. Paved Invert:

1. Use corrugated steel pipe or pipe arch and structural steel plate pipe or pipe arch culverts.
2. Complete backfill and embankment over the pipe before placing paved invert material.

3. Use 10-gage wire fabric with wire spaced at 150 mm centers. AASHTO M 55.
4. Arc-weld the wire mesh reinforcement to the corrugation at not more than 0.6 m centers.
5. Place concrete at least 50 mm above the crest of the corrugations, at least 1/4 the width of the circumference of round pipe, or the span width of arch pipe. Refer to Section 03055.
6. Finish the concrete to a floated surface finish. Follow Section 03310.
7. After curing, coat the joint between the culvert and concrete with liquid asphalt at a rate of 0.4 L/m<sup>2</sup> of residual asphalt. Coat 150 mm above and below the joints.

### **3.9 QUALITY CONTROL**

- A. Provide adequate cover or protection for all culvert to protect them during project construction. Replace all damaged culverts before acceptance by UDOT.
- B. The following constitute poor workmanship and any one is cause for rejection:
  1. Irregular or distorted shape (not as provided or designed)
  2. Dents or bends
  3. Damaged, broken, or scaled coating
  4. Loose bolts or nuts
  5. Uneven laps
  6. Improper fitting joints
  7. Any damage which compromises the functionality and design life of the pipe.
- C. Coatings:
  1. Furnish a Certification of Compliance from the manufacturer.
  2. DEPARTMENT will take a representative sample from each lot furnished to conduct verification testing.
- D. Joints: Furnish a Certificate of Compliance from the manufacturer of the type specified.

END OF SECTION

**SUPPLEMENTAL SPECIFICATION**

**SECTION 02635**

**GRATES, SOLID COVERS, FRAMES, AND MANHOLE STEPS**

**PART I GENERAL**

**1.1 SECTION INCLUDES**

- A. Furnish and install grates, solid covers, frames, and manhole steps.

**1.2 RELATED SECTIONS**

- A. Section 03310: Structural Concrete.
- B. Section 05120: Structural Steel.

**1.3 REFERENCES**

- A. AASHTO M 105: Grey Iron Castings.
- B. AASHTO M 111: Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- C. AASHTO M 199: Precast Reinforced Concrete Manhole Sections.
- D. AASHTO M 270: Structural Steel for Bridges.
- E. ASTM A 536: Ductile Iron Castings.

**PART 2 PRODUCTS**

**2.1 MATERIALS**

- A. Structural Steel:
  - 1. As specified in AASHTO M270.
  - 2. Hot-dip galvanize structural steel after fabrication. AASHTO M 111.
- B. Cast Grey Iron: As specified in AASHTO M 105.
- C. Ductile Iron: As specified in ASTM A 536.

D. Precast Grade Ring: As specified in AASHTO M 199.

## **PART 3 EXECUTION**

### **3.1 INSTALLATION**

A. Install as specified by the manufacturer and the following standard specifications:

<b>Item To Be Installed</b>	<b>Standard Drawing</b>
Diversion Box Solid Cover and Frame, Type A	1562
Diversion Box Solid cover and Frame, Type B	1562
Diversion Box Solid Cover and Frame, Type C	1562
Solid Cover and Frame	1567
Manhole Frame and Grated Cover	1701
Manhole Frame and Solid Cover	1702
Rectangular Grate and Frame (Standard Grating)	1703
Rectangular Grate and Frame (Bicycle-Safe Grating)	1703
Solid Cover and Frame	1705
Manhole Steps	1706

June 13, 2000

**SUPPLEMENTAL SPECIFICATION**

**SECTION 02721 M**

**UNTREATED BASE COURSE (UTBC)**

Delete Line F and Table 2 from paragraph 1.6, "Acceptance."

April 9, 2002

## **SUPPLEMENTAL SPECIFICATION**

### **SECTION 02741**

## **HMA (HOT MIX ASPHALT)**

**Delete Sections 02708, 02741 & 02742 entirely and replace with the following:**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Products and procedures for laying, and compacting a surface course of one or more layers of HMA comprised of aggregate, asphalt binder, lime and other additives.
- B. Mix materials at a central mixing plant.

#### **1.2 RELATED SECTIONS**

- 1. Section 00725: Scope of Work
- 2. Section 01452: Profilograph
- 3. Section 02745: Asphalt Material
- 4. Section 02746: Hydrated Lime
- 5. Section 02748: Prime Coat/Tack Coat
- 6. Section 02961: Rotomilling
- 7. Section 02963: Profile Rotomilling
- 8. Section 02969: Optional Use of Reclaimed Asphalt Pavement (PG Binder Projects)

#### **1.3 REFERENCES**

- A. AASHTO T 11: Materials Finer Than 75  $\mu\text{m}$  (No. 200) Sieve in Mineral Aggregates by Washing

- B. AASHTO T 19: Bulk Density (“Unit Weights”) and Voids in Aggregate
- C. AASHTO T 27: Sieve Analysis of Fine and Coarse Aggregates
- D. AASHTO T 30: Mechanical Analysis of Extracted Aggregate
- E. AASHTO T 84: Specific Gravity and Absorption of Fine Aggregate
- F. AASHTO T 89: Determining the Liquid Limit of Soils
- G. AASHTO T 90: Determining the Plastic Limit and Plasticity Index of Soils
- H. AASHTO T 96: Resistance to Degradation of Small Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
- I. AASHTO T 104: Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate
- J. AASHTO T 112: Clay Lumps and Friable Particles in Aggregate
- K. AASHTO T 166: Bulk Specific Gravity of Compacted Bituminous Mixtures Using Saturated Surface-Dry Specimens
- L. AASHTO T 168: Sampling Bituminous Paving Mixtures
- M. AASHTO T 176: Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test
- N. AASHTO T 195: Determining Degree of Particle Coating of Bituminous-Aggregate Mixtures
- O. AASHTO T 209: Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
- P. AASHTO T 255: Total Evaporable Moisture Content of Aggregate by Drying
- Q. AASHTO T 283: Resistance of Compacted Bituminous Mixture to Moisture Induced Damage (Modified by UDOT Materials Manual of Instruction Part 8 Test Procedure 8-957)
- R. AASHTO T 304: Uncompacted Void Content of Fine Aggregate

- S. AASHTO T 308: Determining the Asphalt Binder Content of Hot-Mix Asphalt (HMA) by the Ignition Method
- T. AASHTO TP 4: Method for Preparing and Determining the Density of Hot-Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor
- U. Asphalt Institute SP-1, SP-2
- V. AASHTO PP 28: Practice for Superpave Volumetric Design for Hot-Mix Asphalt (HMA)
- W. ASTM D 2950: Density of Bituminous Concrete in Place by Nuclear Methods
- X. ASTM D 3549: Thickness or Height of Compacted Bituminous Paving Mixture Specimens
- Y. ASTM D 3665: Random Sampling of Construction Materials
- Z. ASTM D 3666: Minimum Requirements for Agencies Testing and Inspecting Bituminous Paving Materials
- AA. ASTM D 4561: Quality Control Systems for Organizations Producing and Applying Bituminous Paving Materials
- BB. ASTM D 4791: Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
- CC. ASTM D 5506: Standard Practice for Organizations Engaged in the Certification of Personnel Testing and Inspecting Bituminous Paving Materials
- DD. ASTM D 5821: Determining the Percentage of Fractured Particles in Coarse Aggregate
- EE. ASTM E 178: Practice for Dealing with Outlying Observations
- FF. ASTM E 1274: Measuring Pavement Roughness Using a Profilograph
- GG. ASTM E 950: Measuring the Longitudinal Profile of Traveled Surfaces with an Accelerometer Established Inertial Profiling Reference



- HH. Modified GDT-115: Georgia Loaded Wheel
- II. UDOT Materials Manual of Instruction Part 8-209: Asphalt Binder Management Plan
- JJ. UDOT Materials Manual of Instruction Part 8-960: Guidelines for Superpave Volumetric Mix Design
- KK. UDOT Materials Manual of Instruction Part 8-957: Resistance of Compacted Bituminous Mixture to Moisture Induced Damage

#### 1.4 ACCEPTANCE

- A. HMA (Hot Mix Asphalt), Method of Measurement and Basis of Payment in the Supplemental Specifications (Bid Book).
- B. A lot equals the number of megagrams of HMA placed during each production day.
- C. The ENGINEER conducts the acceptance testing for asphalt binder content, gradation, VMA, density, and thickness. AASHTO T 30, T 308, PP 28, T 166, ASTM D 3549
- D. Obtain samples for density and thickness.
  - 1. Divide the lot into five sublots of approximately equal sizes.
  - 2. Obtain ten cores per lot randomly as instructed, and in the presence of the ENGINEER within two days after the pavement is placed.
  - 3. Comply with AASHTO T 166.
  - 4. If the random location for cores falls within 0.3 meter of the edge of the overall pavement section (outer part of shoulders), then move transversely to a point 0.3 meter from the edge of the pavement.
  - 5. Fill core holes with an acceptable asphalt mixture and compact.
  - 6. The DEPARTMENT will take immediate possession of the cores from the CONTRACTOR and will provide density acceptance results within two working days after taking possession.
- E. Density: The target density for determining acceptance and incentive/disincentive is 93.5 percent of maximum Rice density for projects where design overlay thickness is greater than 50 mm. **For projects where design overly thickness is**

**50 mm or less, target density for determining acceptance and incentive/disincentive is 92.5 percent of maximum Rice density.**

AASHTO T 209.

1. Obtain a minimum of two density determinations on a random basis for each subplot. ASTM D 3665.
  2. When samples for gradation, asphalt binder content and VMA from lots are combined according to Part 3, paragraph 3.9, in order to obtain an appropriate sample size for evaluation, a lot for density determination is defined as the combined production days.
- F. Thickness: Base acceptance on the average thickness of a lot. A thickness lot equals a density lot. Divide a thickness lot into five sublots equal to density sublots. Thickness acceptance for thin lift projects (50 mm or less) consists of checking thickness regularly with a depth probe during placement and taking corrective action as necessary.
1. Take a minimum of two randomly selected thickness tests within each subplot.
  2. The same core samples taken for density may be used for thickness verification.
  3. The DEPARTMENT accepts a lot when:
    - a. The average thickness of all sublots is not more than 12 mm greater nor 6 mm less than the total thickness specified.
    - b. No individual subplot shows a deficient thickness of more than 9 mm.
    - c. Place additional materials where lots or sublots are deficient in thickness. The minimum depth of compacted surface for correcting deficient thickness is 3 times the nominal maximum aggregate size.
    - d. The Department pays for the quantity of additional material to bring the surface to design grade.
    - e. The Department does not pay for the quantity of additional material above the design grade due to the minimum paving thickness required.
    - f. The ENGINEER may allow excess thickness to remain in place or may order its removal. Remove and replace the entire depth of the course, if it is necessary to remove portions of the course.
    - g. The Department pays for 50 percent of the mix in excess of the +12 mm tolerance when excess thickness is allowed to remain in place.

HMA (Hot Mix Asphalt)

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- h. The thickness tolerances established above do not apply to leveling courses, overlays, and cushion courses. However, check final surfaces in stage construction.
- G. Smoothness Tests
  - 1. Determine pavement lane smoothness factor using a Profilograph as described in Section 01452, "Profilograph." Calibrate, certify and verify the profilograph prior to use.
- H. Cease production when any two out of three consecutive lots have a net disincentive or the air voids averaged for each lot are not between 3 and 5 percent for any 2 out of 3 consecutive lots.
  - 1. Before production continues, submit a corrective action plan to the ENGINEER indicating the changes in production procedures that will be implemented to correct the deficiencies.
- I. The Department pays incentive/disincentive on the assessed quantities of HMA according to Incentive/Disincentive Table 1 for gradation, asphalt binder content and density, Table 2 for VMA. Base the incentive/disincentive on Percent Within Limit (PT) computation using Tables 3, 4, and 5. Use lowest single value combined for gradation (each of the sieves) and asphalt binder content.
  - 1. Meet PT of 88 or greater for density for eligibility for incentive in gradation/asphalt binder content and VMA. The Department will not pay incentive for gradation/asphalt binder content and VMA if Contractor does not meet this condition.
- J. The Department rejects the lot if the Percent Within Limits (PT) for any individual measurement is less than 60 percent.
  - 1. Submit an engineering analysis within one week, if requesting a rejected lot remain in place.
    - a. Include in the analysis the data and engineering principles indicating why the pavement should remain in place.
    - b. The Engineer, Region Materials Engineer, and Region Construction Engineer review the analysis for acceptance, denial or revision. If the analysis is denied, remove the rejected material from the project within 72 hours, and replace it with acceptable material.
    - c. If rotomilling is required agree on the removal time period.
  - 2. A rejected lot allowed to remain in place will have a \$15.00/Mg deduction applied.
- K. To reduce over-testing of small quantity production days, i.e. ramps, bridgework, etc., the ENGINEER may, in concurrence with the CONTRACTOR, choose to combine production from several days to form a single lot.

<b>Table 1</b> <b>Incentive/Disincentive for Gradation, Asphalt Binder Content and Density</b>			
<b>Gradation/Asphalt Binder Content</b>		<b>Density</b>	
<b>PT Based on Min. Four Samples</b>	<b>Incentive/Disincentive (Dollars/Megagram)</b>	<b>PT Based on Min. Ten Samples</b>	<b>Incentive/Disincentive (Dollars/Megagram)</b>
> 99	0.91	> 99	0.91
96-99	0.74	96-99	0.74
92-95	0.41	92-95	0.41
88-91	0.07	88-91	0.07
84-87	-0.26	84-87	-0.26
80-83	-0.60	80-83	-0.60
76-79	-0.93	76-79	-0.93
72-75	-1.27	72-75	-1.27
68-71	-1.60	68-71	-1.60
64-67	-1.93	64-67	-1.93
60-63	-2.27	60-63	-2.27
<60	Reject	<60	Reject

<b>Table 2</b> <b>Incentive/Disincentive for VMA</b>	
<b>PT Based on Minimum Three Samples</b>	<b>Incentive/Disincentive Dollars/Megagram</b>
> 99	0.54
96-99	0.43
92-95	0.20
88-91	-0.03
84-87	-0.26
80-83	-0.48
76-79	-0.71
72-75	-0.94
68-71	-1.17
64-67	-1.40
60-63	-1.62

<60	Reject
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<b>Table 3</b> <b>Upper and Lower Limit Determination</b>	
<b>Parameter</b>	<b>UL and LL</b>
19.0 mm sieve for 25.0 mm HMA 12.5 mm sieve for 19.0 mm HMA 9.5 mm sieve for 12.5 mm HMA 4.75 mm sieve for 9.5 mm HMA	Target Value $\pm$ 6.0%
2.36 mm sieve	Target Value $\pm$ 5.0%
0.30 mm sieve	Target Value $\pm$ 3.0%
0.075 mm sieve	Target Value $\pm$ 2.0%
Asphalt Binder Content	Target Value $\pm$ 0.35%
VMA Range	11.5-14.5 for 25.0 mm HMA 12.5-15.5 for 19.0 mm HMA 13.5-16.5 for 12.5 mm HMA 14.5-17.5 for 9.5 mm HMA
Density	Lower Limit: Target Value - 2.0% Upper Limit: Target Value + 3.0%

Table 4 Quality Index Values for Estimating Percent Within Limits										
PU/PL	n=3	n=4	n=5	n=6	n=7	n=8	n=10	n=12	n=15	n=20
100	1.16	1.50	1.75	1.91	2.06	2.15	2.29	2.35	2.47	2.56
99	1.16	1.47	1.68	1.79	1.89	1.95	2.04	2.09	2.14	2.19
98	1.15	1.44	1.61	1.70	1.77	1.80	1.86	1.89	1.93	1.97
97	1.15	1.41	1.55	1.62	1.67	1.69	1.74	1.77	1.80	1.82
96	1.15	1.38	1.49	1.55	1.59	1.61	1.64	1.66	1.69	1.70
95	1.14	1.35	1.45	1.49	1.52	1.54	1.56	1.57	1.59	1.61
94	1.13	1.32	1.40	1.44	1.46	1.47	1.49	1.50	1.51	1.53
93	1.12	1.29	1.36	1.38	1.40	1.41	1.43	1.43	1.44	1.46
92	1.11	1.26	1.31	1.33	1.35	1.36	1.37	1.37	1.38	1.39
91	1.10	1.23	1.27	1.29	1.30	1.31	1.32	1.32	1.32	1.33
90	1.09	1.20	1.23	1.24	1.25	1.25	1.26	1.26	1.27	1.27
89	1.08	1.17	1.20	1.21	1.21	1.21	1.21	1.21	1.22	1.22
88	1.07	1.14	1.16	1.17	1.17	1.17	1.17	1.17	1.17	1.17
87	1.06	1.11	1.12	1.12	1.12	1.13	1.13	1.13	1.13	1.13
86	1.05	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
85	1.03	1.05	1.05	1.05	1.05	1.04	1.04	1.04	1.04	1.04
84	1.02	1.02	1.02	1.01	1.01	1.01	1.00	1.00	1.00	1.00
83	1.00	0.99	0.98	0.97	0.97	0.96	0.96	0.96	0.96	0.96
82	0.98	0.96	0.95	0.94	0.94	0.93	0.93	0.92	0.92	0.92
81	0.96	0.93	0.92	0.91	0.90	0.90	0.89	0.89	0.89	0.88
80	0.94	0.90	0.88	0.87	0.86	0.86	0.85	0.85	0.85	0.85
79	0.92	0.87	0.85	0.84	0.83	0.83	0.82	0.82	0.82	0.81
78	0.89	0.84	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.78
77	0.87	0.81	0.79	0.78	0.77	0.76	0.76	0.75	0.75	0.75
76	0.84	0.78	0.76	0.75	0.74	0.73	0.72	0.72	0.72	0.72
75	0.82	0.75	0.73	0.72	0.71	0.70	0.69	0.69	0.69	0.68
74	0.79	0.72	0.70	0.68	0.67	0.67	0.66	0.66	0.66	0.65
73	0.77	0.69	0.67	0.65	0.64	0.64	0.62	0.62	0.62	0.62
72	0.74	0.66	0.64	0.62	0.61	0.61	0.60	0.59	0.59	0.59
71	0.71	0.63	0.60	0.59	0.58	0.58	0.57	0.56	0.56	0.56
70	0.68	0.60	0.58	0.56	0.55	0.55	0.54	0.54	0.54	0.53
69	0.65	0.57	0.55	0.54	0.53	0.52	0.51	0.51	0.51	0.50
68	0.62	0.54	0.52	0.51	0.50	0.50	0.48	0.48	0.48	0.48
67	0.59	0.51	0.49	0.48	0.47	0.47	0.46	0.45	0.45	0.45
66	0.56	0.48	0.46	0.45	0.44	0.44	0.43	0.42	0.42	0.42
65	0.53	0.45	0.43	0.42	0.41	0.41	0.40	0.40	0.40	0.39
64	0.49	0.42	0.40	0.39	0.38	0.38	0.37	0.37	0.37	0.37
63	0.46	0.39	0.37	0.36	0.35	0.35	0.35	0.34	0.34	0.34
62	0.43	0.36	0.34	0.33	0.33	0.33	0.32	0.31	0.31	0.31
61	0.39	0.33	0.31	0.30	0.30	0.30	0.29	0.29	0.29	0.28

60	0.36	0.30	0.28	0.27	0.26	0.26	0.25	0.25	0.25	0.25
<60	≤0.35	≤0.29	≤0.27	≤0.26	≤0.25	≤0.25	≤0.24	≤0.24	≤0.24	≤0.24

Enter table in the appropriate sample size column and round down to the nearest value.

<b>Table 5 Definitions, Abbreviations, and Formulas for Acceptance</b>	
<b>Term</b>	<b>Explanation</b>
Target Value (TV)	The target values for gradation and asphalt binder content are given in the CONTRACTOR's mix design. The target value for density is 93.5% of maximum (Rice) density.
Average (AVE)	The sum of the lot's test results for a measured characteristic divided by the number of test results; the arithmetic mean.
Standard Deviation (s)	The square root of the value formed by summing the squared difference between the individual test results of a measured characteristic and AVE, divided by the number of test results minus one. This statement does not limit the methods of calculations of s; other methods that obtain the same value may be used.
Upper Limit (UL)	The value above the TV of each measured characteristic that defines the upper limit of acceptable production. (Table 3)
Lower Limit (LL)	The value below the TV of each measured characteristic that defines the lower limit of acceptable production (Table 3)
Upper Quality Index (QU)	$QU = (UL - AVE)/s$
Lower Quality Index (QL)	$QL = (AVE - LL)/s$
Percentage of Lot Within UL (PU)	Determined by entering Table 4 with QU.
Percentage of Lot Within LL (PL)	Determined by entering Table 4 with QL.
Total Percentage of Lot (PL) Within UL and LL (PT)	$PT = (PU + PL) - 100$
Incentive/Disincentive	Determined by entering Table 1 and 2 with PT or PL.

All values for AVE, s, QU, and QL will be calculated to two decimal place accuracy which will be carried through all further calculations. Rounding to lower accuracy is not allowed.

## **PART 2 PRODUCTS**

### **2.1 ASPHALT BINDER**

- A. Refer to Special Provision 02742S, Project Specific Surfacing Requirements.

- B. Asphalt material: Refer to Section 02745.
- C. Sampling procedure: UDOT Materials Manual of Instruction Part 8-209
- D. Asphalt Binder Management Plan: UDOT Materials Manual of Instruction Part 8-209

## **2.2 AGGREGATE**

- A. Refer to the Minimum Test Requirements.
- B. Crusher processed virgin aggregate material consisting of crushed stone, gravel, or slag. Conform to Section 02969, “Optional Use of Reclaimed Asphalt Pavement (PG Binder Projects),” for recycled mixes.
- C. Use the following requirements, including Table 6, to determine the suitability of the aggregate.
  - 1. Coarse aggregates:
    - a. Retained on 4.75 mm sieve.
  - 2. Fine aggregates:
    - a. Clean, hard grained, and angular.
    - b. Passing the 4.75 mm sieve.



<b>Table 6</b> <b>Aggregate Properties - HMA</b>			
<b>Test Method</b>	<b>Test No.</b>	<b>Category 1</b>	<b>Category 2</b>
One Fractured Face	ASTM D 5821	95% min.	85% min. (25.0 mm and 19.0 mm), and 90 % min. (12.5 mm and 9.5 mm)
Two Fractured Face	ASTM D 5821	90% min.	80% min. (25.0 mm and 19.0 mm), and 90 % min. (12.5 mm and 9.5 mm)
Fine Aggregate Angularity	AASHTO T 304	45 min.	45 min.
Flat and Elongated 1 to 3 ratio	ASTM D 4791 (Based on 9.5 mm and above)	20 % max.	20 % max.
L.A. Wear	AASHTO T 96	35 % max.	40 % max.
Sand Equivalent	AASHTO T 176 (Pre-wet method)	60 min.	45 min.
Plasticity Index	AASHTO T 89 and T 90	0	0
Unit Weight	AASHTO T 19	min. 1200 kg/m <sup>3</sup>	min. 1200 kg/m <sup>3</sup>
Soundness (sodium sulfate)	AASHTO T 104	16 % max. loss with five cycles	16 % max. loss with five cycles
Clay Lumps and Friable Particles	AASHTO T 112	2 % max	2 % max.
Natural Fines	N/A	0	10 % max.
Category 1: National Highway System and Truck Routes - Table 11. Category 2: All Other Routes			

D. Meet gradation requirements in Table 7.

<b>Table 7</b> <b>Aggregate Gradations (Percent Passing by Dry Mass of Aggregate)</b>					
Sieve Size (mm)		25.0	19.0	12.5	9.5
<b>Control Sieves</b>	37.5	100.0	-	-	-
	25	90.0 - 100.0	100.0	-	-
	19	<90	90.0 - 100.0	100.0	-
	12.5	-	<90	90.0 - 100.0	100.0
	9.5	-	-	<90	90.0 - 100.0
	4.75	-	-	-	< 90
	2.36	19.0 - 45.0	23.0 - 49.0	28.0 - 58.0	32.0 - 67.0
	0.075	1.0 - 7.0	2.0 - 8.0	2.0 - 10.0	2.0 - 10.0
<b>Caution Zone Boundaries</b>  <b>(Information only)</b>	4.75	39.5	-	-	-
	2.36	26.8 - 30.8	34.6	39.1	47.2
	1.18	18.1 - 24.1	22.3 - 28.3	25.6 - 31.6	31.6 - 37.6
	0.6	13.6 - 17.6	16.7 - 20.7	19.1 - 23.1	23.5 - 27.5
	0.3	11.4	13.7	15.5	18.7

## 2.3 HYDRATED LIME

A. Meet the requirements of Section 02746.

## 2.4 JOB-MIX DESIGN

- A. Satisfy all the requirements for Superpave Volumetric Mix Design according to Asphalt Institute, SP-1, and SP-2, AASHTO PP 28 and the following:
1. Moisture Susceptibility (Lottman), AASHTO T 283, modified by UDOT Materials Manual of Instruction Part 8-957
  2. Rut Resistance (Asphalt Pavement Analyzer) (Rut Test), Modified GDT-115.
  3. Use a laboratory accredited by AASHTO Materials Reference Laboratory (AMRL) in the use of the Superpave Gyratory Compactor. AASHTO TP 4.
  4. Use a FHWA-protocol approved Superpave Gyratory Compactor.
  5. Meet all volumetric mix design requirements for the selected target gradation.

- B. Submit the Volumetric Mix Design data for verification at least 10 working days before beginning paving. Do not begin paving until verification is complete.
1. Include all information regarding selection of design aggregate structure showing the target values of percent passing on all sieves listed in Table 7, and the design asphalt binder content.
  2. Provide information that aggregate proposed for use meet the requirements of Table 6.
  3. Supply QC data for target job mix gradation selection. Use those target values for price adjustments.
  4. After the design is complete, run 4 sets of 2 Gyratory specimens at the design asphalt binder content to verify the optimum asphalt and all other design requirements.
- C. Submit Lottman test data using Method A lime slurry for all sources. Submit both A and B lime slurry data for new sources with no historic data.
1. Meet minimum Tensile Strength Ratio (TSR) of 80 percent.
  2. Comply with UDOT Materials Manual 8-957 and AASHTO T 283.
- D. Designate asphalt binder supplier.
- E. Use gyratory mixing and compaction temperatures supplied by the Engineer.
- F. The Department Region Materials Lab verifies the Volumetric Mix Design. UDOT Materials Manual of Instruction Part 8-960: Guidelines for Superpave Volumetric Mix Design.

## 2.5 SUPERPAVE VOLUMETRIC MIX DESIGN

- A. Comply with the following requirements for Superpave volumetric mix design:

<b>Table 8</b> <b>Superpave Volumetric Mix Design - HMA</b> <b>Number of Gyration Table</b>				
20 Years Design ESALS (Million)	Compaction Parameters			Voids Filled with Asphalt (VFA) (%)
	N <sub>initial</sub> /% of G <sub>mm</sub> <sup>*</sup>	N <sub>design</sub> /% of G <sub>mm</sub> <sup>*</sup>	N <sub>max</sub> /% of G <sub>mm</sub> <sup>*</sup>	
0.3	6/≤ 91.5	50/96	75/≤ 98	70 - 80 **
0.3 to <3	7/≤ 90.5	75/96	115/≤ 98	65 - 78
3 to < 30	8/≤ 89	100/96	160/≤ 98	65 - 75
≥30	9/≤ 89	125/96	205/≤ 98	65 - 75

\* G<sub>mm</sub>: Maximum specific gravity of Mix. (Rice Method)

\*\* 67 percent specified lower limit VFA for 25.0 mm nominal maximum size mixture.

<b>Table 9</b> <b>Superpave Volumetric Mix Design Requirements</b>	
HMA design mixing and compaction temperatures	Provided by the ENGINEER
Voids in Mineral Aggregate (VMA) at $N_{\text{design}}$ AASHTO PP 28.9.2, using $G_{\text{sb}}$ at SSD. Equation based on percent of total mix.	12.0 percent - 14.0 percent for 25.0 mm. 13.0 percent - 15.0 percent for 19.0 mm. 14.0 percent - 16.0 percent for 12.5 mm. 15.0 percent - 17.0 percent for 9.5 mm
Pavement Analyzer - Modified GDT-115 (Rut test at high temperature of UDOT PG Asphalt Map).	< 5.00 mm

- B. Prepare and submit 2 sets (5 samples each) of ignition oven calibration samples.
  - 1. DEPARTMENT will use these samples to determine the correction factors for the Region and Field lab ignition oven.
  - 2. Submit samples a minimum of three working days prior to paving.

## 2.6 CONTRACTOR INITIATED CHANGES IN JOB-MIX DESIGN

- A. Submit all requests in writing prior to incorporating changes into production.
- B. Submit a field volumetric mix design if changes occur in either or both the target gradation value, or the design asphalt binder content.
  - 1. Field volumetric mix design to verify volumetric properties consists of 3 sets of 2 gyratory specimens run at the new target gradation and/or asphalt binder content.
  - 2. If the field volumetric mix design does not meet the volumetric requirements, submit a new laboratory volumetric mix design from an AMRL laboratory accredited in AASHTO TP 4. Allow at least 4 working days for verification.
- C. Submit a new laboratory volumetric mix design if changes occur in the aggregate source, asphalt binder source or grade.
- D. The ENGINEER reviews, and the Region Materials Engineer verifies the submittal. AASHTO PP 28
- E. The DEPARTMENT performs up to 2 free volumetric mix design verifications (initial plus one Contractor initiated change) for each project and will charge \$2000 for each additional CONTRACTOR initiated change in the target design values.

## **PART 3 EXECUTION**

### **3.1 ADDING HYDRATED LIME**

- A. Method A, Lime Slurry; or Method B, Lime Slurry Marination: Refer to Section 02746.
  - 1. Incorporate minimum hydrated lime by dry weight of aggregate (1 percent for Method A and 1½ percent for Method B) into all mixtures.

### **3.2 HMA**

- A. Dry aggregate to an average moisture content of not more than 0.2 percent by weight. AASHTO T 255. Adjust burners to avoid damage or soot contamination of the aggregate.
- B. Coat with asphalt binder 100 percent of the particles passing and 98 percent of the particles retained on the 4.75 mm sieve.
  - 1. AASHTO T 195.
  - 2. Discontinue operation and make necessary corrections if material is not properly coated.
- C. Maintain temperature of the HMA between established limits.
  - 1. Do not overheat the material or cause thermal damage to the asphalt binder.
  - 2. DEPARTMENT will reject and CONTRACTOR will remove materials heated over the established limits.

### **3.3 HMA PLANT**

- A. Provide:
  - 1. Positive means to determine the moisture content of aggregate.
  - 2. Positive means to sample all material components.
  - 3. Sensors to measure the temperature of the HMA at discharge.
  - 4. The ability to maintain discharge temperature of the mix in accordance with the mix design.
- B. Asphalt Binder Storage Tanks:
  - 1. Provide calibrated tanks so the quantity of material remaining in the tank can be determined at any time.
  - 2. Provide a positive means of sampling the asphalt binder from the tanks.

### **3.4 SURFACE PREPARATION**

- A. Locate, reference, and protect all utility covers, monuments, curb and gutter, and other components affected by the paving operations.
- B. Remove all moisture, dirt, sand, leaves, and other objectionable material from the prepared surface before placing the mix.
- C. Complete spot leveling 48 hours before placing pavement courses.
  - 1. Place, spread, and compact leveling mix on portions of the existing surface.
  - 2. Fill and compact any localized potholes more than 25 mm deep.
- D. Allow sufficient cure time for prime coat/tack coat prior to placing HMA. Refer to Section 02748.

### **3.5 SURFACE PLACEMENT**

- A. When full-width or echelon paving is impractical and more than one pass is required, provide a 1:3 (vertical to horizontal) sloped edge adjacent to the next lane to be paved.
- B. Adjust the production of the mixing plant and material delivery until a steady paver speed is maintained.
- C. Offset longitudinal joints 150 mm to 300 mm in succeeding courses.
  - 1. Place top course joint within 300 mm of the centerline or lane line.
  - 2. If the previous pass has cooled below 80 degrees C, tack the longitudinal edge before placing the adjacent pass.
- D. Offset transverse construction joints at least 2 m longitudinally to avoid a vertical joint through more than one course.
- E. Do not allow construction vehicles, general traffic, or rollers to pass over the uncompacted end or edge of freshly placed mix until the mat temperature drops to a point where damage or differential compaction will not occur.
- F. Taper the end of a course subjected to traffic at approximately 1:50 (vertical to horizontal).
  - 1. Make a transverse joint by saw or wheel cutting and removing the portion of the pass that contains the tapered end.
  - 2. Tack the contact surfaces before fresh mix is placed against the compacted mix.
- G. Use a motor grader, spreader box, or other approved spreading methods for projects under 150 m<sup>2</sup>, irregular areas, or for miscellaneous construction such as detours, sidewalks, and leveling courses.

### 3.6 COMPACTION

- A. In addition to normal rolling, use a small compactor or vibratory roller at structures.
- B. Operate in a transverse direction next to the back wall and approach slab.

### 3.7 LIMITATIONS

- A. Do not place HMA on frozen base or subbase.
- B. Use a UDOT approved release agent for all equipment and hand tools used to mix, haul, and place the HMA. Refer to UDOT Qualified Products Listing.
- C. Do not place HMA during adverse climatic conditions, i.e. precipitation, or when roadway surface is icy or wet.
- D. Place HMA between April 15 and October 15, and when the air temperature in the shade and the roadway surface temperature is above 10°C.
  - 1. The Department will determine if it is feasible to place HMA outside the above limits. Obtain written approval from the ENGINEER

### 3.8 CONTRACTOR QUALITY CONTROL

**This Section does not apply to projects of 20,000 MG or less and projects where design overlay thickness is 50 mm or less.**

- A. General
  - 1. Reference the following standards for qualification, control, and guidelines:
    - a. ASTM D 3666.
    - b. ASTM D 4561.
    - c. ASTM D 5506.
  - 2. Include the following tests in ASTM D 5506, Part 2, “Referenced Documents,” for the following:
    - a. AASHTO T 308
    - b. AASHTO PP 28, TP 4
    - c. AASHTO T 283 Modified by UDOT Materials Manual of Instruction Part 8-957.
    - d. ASTM E 1274.
  - 3. Establish and maintain a quality control system which will provide assurance that materials and completed construction conform to contract requirements.
  - 4. Identify the Quality Control Manager by name. The Quality Control Manager will implement and maintain the Quality Control Plan.

5. Provide the ENGINEER a certification stating that all the testing equipment to be used is properly calibrated and will meet the specifications applicable for the specified test procedures. Provide evidence that Technicians are WAQTC certified. The ENGINEER may require the CONTRACTOR's technician to perform testing of samples to demonstrate an acceptable level of performance.

B. QUALITY CONTROL PLAN (QCP)

1. Provide and maintain a Quality Control Plan covering all personnel, equipment, supplies, and facilities necessary to obtain samples, perform and document tests, and otherwise provide a quality product.
2. Submit the written QCP to the ENGINEER at least 10 days before beginning operations, or at the Preconstruction Conference.
3. The DEPARTMENT will make no partial payments for materials that are subject to specific quality control requirements without a QCP.
4. The CONTRACTOR or independent organization may operate the QCP. However, the CONTRACTOR is responsible for the QCP's administration, including compliance with the QCP and any modifications.
5. Address the following minimum items:
  - a. Quality control organization chart and area of responsibility and authority of each individual.
  - b. Names and qualifications of personnel as required by this Section, paragraph: Quality Control Organization Personnel Requirements.
  - c. Provide a description of outside organizations and their services (such as testing laboratories etc.) if employed.
  - d. Tests required to be performed, the frequency of testing, sampling locations, and location of the testing facilities.
  - e. Documentation of test procedures verifying that tests are conducted in accordance with the testing plan, and that proper corrective actions are taken when required.
  - f. Procedures for verifying that testing equipment is available, complies with specified standards, and is calibrated against certified standards.
  - g. Procedures for verifying that tests are conducted in accordance with the appropriate ASTM and AASHTO standards.
  - h. Procedures for submitting test results to the ENGINEER daily.



6. QCP elements: address all elements that affect the quality of the HMA including:
  - a. Mix Design
  - b. Aggregate Grading
  - c. Quality of Materials
  - d. Stockpile Management
  - e. Proportioning
  - f. Mixing
  - g. Placing and Finishing
  - h. Sampling and Testing Procedures
  - i. Joints
  - j. Compaction
  - k. Surface smoothness

C. QUALITY CONTROL ORGANIZATION

1. Implement the QCP by
  - a. Establishing a separate Quality Control Organization.
  - b. Developing an organization chart to show all quality control personnel and how these personnel integrate with other management, production, and construction functions and personnel.
2. Identify all quality control staff on the organization chart by name and function, and indicate the total staff required to implement all elements of the quality control programs, including inspection and testing functions for different items of work.
3. If an outside organization or laboratory is used to implement all or part of the QCP, the personnel assigned are subject to the qualification requirements of this Section. Indicate on the organization chart which personnel are contractor employees and which are provided by an outside organization.

D. QUALITY CONTROL ORGANIZATION PERSONNEL REQUIREMENTS

1. As outlined in ASTM D 3666, Part 7, with the following modifications.

Quality Control Manager:

  - a. Institutes any and all actions necessary to successfully operate the QCP in compliance with specifications.
  - b. Reports directly to a responsible officer in the CONTRACTOR's organization.
  - c. May supervise the QCP on more than one project provided that the Quality Control Manager can be at the job site within one hour after being notified of a problem.

2. Certification of Personnel. As outlined in ASTM D 5506 with the following changes:
  - a. Provide a sufficient number of quality control technicians to adequately implement the QCP. These personnel will be either engineers or engineering technicians certified by WAQTC.
3. Quality Control Technicians:
  - a. Report directly to the Quality Control Manager.
  - b. Inspect all plant equipment used in proportioning and mixing to verify proper calibration and operating condition.
  - c. Perform quality control tests necessary to adjust and control mix proportioning in accordance with the job mix formula.
  - d. Inspect all equipment used in placing, finishing, and compaction to verify proper operating condition.
  - e. Inspect all construction operations to verify conformance with the specifications.
  - f. Perform all quality control testing as required by this Section, paragraph: Quality Control Testing.
  - g. Detail the criteria to be used in initiating correcting unsatisfactory production processes and construction practices.

E. QUALITY CONTROL TESTING LABORATORY

1. Reference ASTM D 4561 with the following additions:
    - a. Provide a fully equipped asphalt laboratory located within 30 minutes travel time of the plant or job site.
    - b. Keep laboratory facilities clean and all equipment maintained in proper working condition.
    - c. Permit the ENGINEER unrestricted access to inspect the CONTRACTOR's quality control testing laboratory facility and witness quality control activities. The DEPARTMENT advises in writing of any noted deficiencies concerning the laboratory facility, equipment, supplies or testing personnel and procedures.
    - d. Suspend work when test results indicate materials are out of specification tolerances. Resume only when the deficiencies are corrected.
- Perform quality audits under this standard.
  - Refer to UDOT QA Manual.
2. Sampling:
    - a. Use a statistically based procedure of random sampling.
    - b. The Engineer has the right to witness all sampling.

3. Noncompliance:

- a. When quality control activities do not comply with either the CONTRACTOR's Quality Control Program or the Contract provisions, or where the CONTRACTOR fails to properly operate and maintain an effective Quality Control Program, the ENGINEER may:

- Order the CONTRACTOR to replace ineffective or unqualified personnel.
- Carry out the functions and operation of the CONTRACTOR's approved Quality Control Program.
- Deduct costs incurred by the DEPARTMENT to operate the program or otherwise remedy the noncompliance from the total amount due the CONTRACTOR.

F. QUALITY CONTROL TESTING

1. Perform all quality control tests necessary to control the production and construction processes applicable to these specifications and listed in the QCP.
2. Establish a testing program to control as a minimum: asphalt binder content, aggregate gradation, VMA, temperatures, aggregate moisture, field compaction, and surface smoothness.
3. Monitoring: The DEPARTMENT reserves the right to monitor any or all QC testing.
4. Follow the requirements of Table 10, and conduct any additional testing to control the process.

<b>Table 10</b> <b>Quality Control Testing for HMA</b>	
<b>Testing Method/ Acceptance Documentation</b>	<b>Testing Frequency</b>
AASHTO T 308 <b>Asphalt binder content:</b> by the ignition method	Minimum 4 tests per lot **
AASHTO T 30 <b>Gradation:</b> Mechanical analysis of the remains of the Ignition test.	Minimum 4 tests per lot
AASHTO T 255 <b>Moisture content:</b> of aggregate used in production by drying	Minimum One test per lot
<b>Temperature</b> for: dryer, bitumen in the storage tank, mixture at the plant, and mixture at the job site.	Record at least four times per lot
ASTM D 2950 <b>In-place Density Monitoring</b> Conduct all testing necessary to meet density requirements.	Minimum 10 density determinations per lot
AASHTO TP 4, PP 28 <b>Field Gyratory Specimens</b> Verify mix design parameters meet Job-mix requirements, and adjust mix as needed to meet parameters. Mold field gyratory specimens at mix design temperatures determined by the ENGINEER.	Minimum of one determination (two Gyratory specimens each) of VMA and Air Voids for each lot.

\*\* A lot is defined in Section 02741, Part 1, paragraph 1.4

#### G. CONTROL CHARTS

1. Maintain daily linear control charts both for mean and range. Include in charts aggregate gradation, asphalt binder content, stockpile gradation, VMA, Density and in-place air voids.
2. Post control charts daily in a location satisfactory to the Engineer. As a minimum, identify:
  - a. Project number
  - b. Contract item number
  - c. Test number
  - d. Each test parameter

- e. Test results
- 3. Use the control charts as part of a process control system for identifying potential problems and assignable causes before they occur. If the projected data during production indicates a problem and no corrective action is taken, the ENGINEER may suspend production or acceptance of the material.

#### H. QUALITY CONTROL REPORTS

- 1. Maintain records and submit daily reports of quality control activities.

### 3.9 AGENCY ACCEPTANCE TESTING

#### A. The DEPARTMENT will:

- 1. Divide each lot into four sublots based on the scheduled production day.
- 2. Take random samples behind the paver before any further compaction, and determine random numbers/locations from a random numbers table. ASTM D 3665, AASHTO T 168.
- 3. Inform the CONTRACTOR of the time and place for the sample not more than 15 minutes prior to the sampling.
- 4. Conduct the following tests:
  - a. Asphalt Binder Content : One per subplot using ignition oven. AASHTO T 308
  - b. Aggregate gradation: One test per subplot on the residue of the ignition oven tests. AASHTO T 30.
  - c. VMA: 3 tests per lot. AASHTO TP 4
- 5. Perform three Rice tests for each lot. Use the average for the lot to determine density of cores taken by the CONTRACTOR. Refer to Section 02741, Part 1, paragraph 1.4.
- 6. Determine thickness of cores taken by the CONTRACTOR. Refer to Section 02741, Part 1, paragraph 1.4.
- 7. Add the lot to the previous day's production if the minimum number of samples cannot be obtained for the final day's production and evaluate with the appropriate sample size.
- 8. Add the lot to the next day's production if the minimum number of samples cannot be obtained, and evaluate with the appropriate sample size.
- 9. Retest the lot if an individual test from a subplot is deemed an outlier based on ASTM E 178.

### 3.10 DISPUTE RESOLUTION

- A. Request a review of acceptance tests with the ENGINEER if disagreeing with the Department's test results.
  - 1. Submit all QC test results.

2. Submit any other pertinent information, including an engineering analysis, if available.
3. The ENGINEER will evaluate the above information and respond with a decision within three working days.

## NATIONAL HIGHWAY SYSTEM AND TRUCK ROUTES

<b>Table 11</b> <b>National Highway System and Truck Routes</b> <b>Category 1</b>		
<b>Interstate Routes</b>	<b>Beginning</b>	<b>Ending</b>
<b>1-15</b>	Arizona State Line	Idaho State Line
<b>1-70</b>	Jct I-70 - Cove Fort	Colorado State Line
<b>1-80</b>	Nevada State Line	Wyoming State Line
<b>1-84</b>	Idaho State Line	Jct I-80 - Coalville
<b>1-215</b>	Jct I-80 - Parleys Canyon	Jct I -15 - North Salt Lake
<b>US Routes</b>		
<b>US-6</b>	Nevada State Line	Jct US-50 - Delta
<b>US-6</b>	Jct I-15 - Spanish Fork	Jct I-70 - Green River
<b>US -40</b>	Jct I-80 - Park City	Colorado State Line
<b>US-50</b>	Jct US-6 - Delta	Jct I-15 - Holden
<b>US -89</b>	Arizona State Line	Jct I-70 - Sevier
<b>US -89</b>	Jct I-70 - Salina	Jct SR-28 - Gunnison
<b>US-89</b>	Jct US-6 - Spanish Fork	Jct SR-73 - Lehi
<b>US-89</b>	Jct I-15 - Draper, Exit 295	Jct SR-269 - 5 <sup>th</sup> and 6 <sup>th</sup> South
<b>US-89</b>	Jct I-15 - Farmington	Jct I-80 - Uintah
<b>US-89</b>	Jct I-84 - Uintah	Jct SR-134 - North Ogden
<b>US-89</b>	Jct US-91 - Logan	Idaho State Line
<b>US-91</b>	Jct I-15 - Brigham City	Jct US-89 - Logan
<b>US-189</b>	Jct I-15 - South Provo	Jct US-40 - Heber City
<b>US-191</b>	Arizona State Line	Jct I-70 - Thompson
<b>US-666</b>	Jct US-191 - Monticello	Colorado State Line
<b>State Routes</b>	<b>Beginning</b>	<b>Ending</b>
<b>SR-9 - Zions Park</b>		

<b>Table 11</b> <b>National Highway System and Truck Routes</b> <b>Category 1</b>		
<b>SR-10 - Castle Valley</b>	Jct I-70 - Fremont Jct	Jct US-6 - Price
<b>SR-12 - Bryce Canyon</b>	Jct US-89 - Panguitch	Jct SR-63 - Bryce Canyon
<b>SR-26 - Riverdale Road</b>	Uct I-15 - Exit 342	Jct US-89 - Ogden
<b>SR-28 - Levan Desert</b>	Jct US-89 - Gunnison	Jct I-15 - South Nephi
<b>SR-31 - Huntington</b>	Mile Post 33	Mile Post 49
<b>SR-36 - Tooele Access</b>	Jct entrance - Tooele Army Depot	Jct I-80 - Tooele Interchange
<b>SR-39 - 20<sup>th</sup> and 21<sup>st</sup> Ogden</b>	Jct I-15 - Exit 344	Jct SR-203 - Harrison Blvd
<b>SR-52 - 8<sup>th</sup> North, Orem</b>	Jct I-15 - Orem	Jct US -189 - Olmstead Jct
<b>SR-57 - Orangeville Bypass</b>	Jct SR-10 - Hunter Power Plant	Entrance - Wilberg Coal Mine
<b>SR-71 - 7<sup>th</sup> and 9<sup>th</sup> East Street Salt Lake City</b>	Jct SR0-209 - 90th South Street	Jct SR-186 - 4 <sup>th</sup> South Street
<b>SR-73 - Lehi Connection</b>	Jct I-15 - South Lehi	Jct US-89 - South Lehi
<b>SR-79 - 12<sup>th</sup> Street Ogden</b>	Jct I-15 - Exit 347	Jct SR-203 - Harrison Blvd.
<b>SR-96 - Scofield Access</b>	Mile Post 3	Mile Post 4
<b>SR-111 - Bacchus Highway</b>	Jct SR-48 - Bingham Highway	Jct SR-201 - 21 <sup>st</sup> South Expressway
<b>SR-134 - 2700 North</b>	Jct I-15 - North Ogden, Exit 352	Jct US-89 - North Ogden
<b>SR-152 - Van Winkle Expressway</b>	Jct SR-71 - 9th East Street	Jct I-215 - East (Exit 8)
<b>SR-154 - Bangerter Highway</b>	Jct I-15 - Draper	Jct I-80 - Salt Lake Intl Airport
<b>SR-171 - 33<sup>rd</sup> and 35<sup>th</sup> South Salt Lake City</b>	Jct SR-172 - 56 <sup>th</sup> West Street	Jct I-215 - East, Exit 3
<b>SR-172 - 56<sup>th</sup> West Street Salt Lake City</b>	Jct 6200 South - Kearns	Jct I-80 - International Center
<b>SR-186 Foothill Blvd</b>	Jct SR-71 - 7 <sup>th</sup> East Street, SLC	Jct I-215 - East (Exit 1)
<b>SR-190 - Big Cottonwood</b>	Jct I 215 - East, Exit 7, SLC	Jct SR-210 - Little Cottonwood
<b>State Routes</b>	<b>Beginning</b>	<b>Ending</b>



<b>Table 11</b> <b>National Highway System and Truck Routes</b> <b>Category 1</b>		
<b>SR-201 - 21<sup>st</sup> South Expressway</b>	Jct I-80 - Lake Point	Jct I-15 - South Salt Lake
<b>SR-203 - Harrison Blvd</b>	Jct US-89 - South Ogden	Jct SR-39 - 12 <sup>th</sup> Street
<b>SR-209 - 90<sup>th</sup> &amp; 94<sup>th</sup> South</b>	Jct SR-68 - Redwood Road (SLC)	Jct SR-210 - Little Cottonwood
<b>SR-210 - Little Cottonwood</b>	Jct SR-190 - Big Cottonwood	Jct SR-209 - 90 <sup>th</sup> and 96 <sup>th</sup> South
<b>SR-264 - Skyline Mine Road</b>	Mile Post 12	Mile Post 15
<b>SR-265 - University Parkway</b>	Jct I-15 - Exit 272	Jct I-215 East, Exit 5
<b>SR-266 - 45<sup>th</sup> &amp; 47<sup>th</sup> South Taylorsville</b>	Jct I-215 - West, Exit 15	Jct I-215 - East, Exit 5
<b>SR-269 - 5<sup>th</sup> &amp; 6<sup>th</sup> South Salt Lake City</b>	Jct I-215, Exit 310	Jct SR-71 - 7 <sup>th</sup> East Street

END OF SECTION

## **SUPPLEMENTAL SPECIFICATION**

### **SECTION 02745**

## **ASPHALT MATERIAL**

Delete Section 02745 and replace with the following:

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Asphalt materials.

#### **1.2 PAYMENT PROCEDURES**

- A. Price adjustments for asphaltic cement and liquid asphalt (chip-seal emulsions and/or cut-backs):
  - 1. Standard department procedures governs price adjustments made where asphalt material does not conform to the specifications
    - a. If the price adjustment exceeds 30 percent, the Engineer may order the removal of any or all the defective asphalt material.
    - b. The pay factor for such material is 0.50 when allowed to remain in place.
- B. Price adjustments for Performance Graded Asphalt Binder (PGAB):
  - 1. Standard department PGAB management plan governs price reductions or removal of material where they binder does not conform to the specifications.

#### **1.3 REFERENCES**

- A. AASHTO M 81: Cut-Back Asphalt (Rapid-Curing Type).
- B. AASHTO M 82: Cut-Back Asphalt (Medium-Curing Type).
- C. AASHTO M 140: Emulsified Asphalt.
- D. AASHTO M 208: Cationic Emulsified Asphalt.
- E. AASHTO M 226: Viscosity Graded Asphalt Cement.
- F. AASHTO MP 1: Performance Graded Asphalt Cement.

- G. AASHTO T 44: Solubility of Bituminous Materials.
- H. AASHTO T 49: Penetration of Bituminous Materials.
- I. AASHTO T 50: Float Test for Bituminous Materials.
- J. AASHTO T 51: Ductility of Bituminous Materials.
- K. AASHTO T 59: Testing Emulsified Asphalt.
- L. AASHTO T 201: Kinematic Viscosity of Asphalts.
- M. AASHTO T 228: Specific Gravity of Semi-Solid Bituminous Materials.
- N. AASHTO T 240: Effect of Heat and Air on a Moving Film of Asphalt (Rolling Thin-Film Oven Test).
- O. AASHTO T 300: Force Ductility of Bituminous Materials.
- P. AASHTO T 301: Elastic Recovery Test of Bituminous Materials by Means of a Ductilometer.
- Q. ASTM D 92: Flash and Fire Points by Cleveland Open Cup.
- R. ASTM D 1190: Concrete Joint Sealer, Hot-Applied Elastic Type.
- S. ASTM D 2007: Characteristic Groups in Rubber Extender and Processing Oils and Other Petroleum-Derived Oils by the Clay-Gel Absorption Chromatographic Method.
- T. ASTM D 2026: Cutback Asphalt (Slow-Curing Type).
- U. ASTM D 3405: Joint Sealants, Hot-Applied, for Concrete and Asphalt Pavements.
- V. ASTM D 4402: Viscosity Determinations of Unfilled Asphalts Using the Brookfield Thermosel Apparatus.
- W. ASTM D 5167: Melting of Hot-Applied Joint and Crack Sealant and Filler for Evaluation.
- X. ASTM D 5329: Sealants and Fillers, Hot-Applied, For Joints and Cracks in Asphaltic and Portland Cement Concrete Pavements.

Y. ASTM D 5801: Toughness and Tenacity of Bituminous Materials.

#### **1.4 SUBMITTALS**

- A. For each shipment of material, supply a vendor-prepared bill of lading showing the following information:
1. Type and grade of material
  2. Type and amount of additives, used, if applicable
  3. Destination
  4. Consignee's name
  5. Date of Shipment
  6. Railroad car or truck identification
  7. Project number
  8. Loading temperature
  9. Net weight in metric units (or net liters corrected to 16 degrees C, when requested)
  10. Specific gravity
  11. Bill of lading number
  12. Manufacturer of asphalt material

#### **1.5 DELIVERY, STORAGE AND HANDLING**

- A. Each shipment of asphalt material must:
1. Be uniform in appearance and consistency.
  2. Show no foaming when heated to the specified loading temperature.
- B. Do not supply shipments contaminated with other asphalt types or grades than those specified.

#### **1.6 GRADE OF MATERIAL**

- A. The Engineer determines the grade of material to be used based on the supply source designated by the Contractor when the bid proposal lists more than one grade of asphalt material.

### **PART 2 PRODUCTS**

#### **2.1 PERFORMANCE GRADED ASPHALT BINDER (PGAB)**

- A. Supply PGABs under the Approved Supplier Certification (ASC) System. Refer to UDOT Asphalt Binder Quality Management Plan.
- B. As specified in AASHTO MP 1, with the following modifications:
1. Delete superscript (f) for all specified grades having algebraic differences of 92 degrees C or greater between the high and low design temperatures.

2. Add Direct Tension Test for all specified grades having algebraic differences of 92 degrees C or greater between the high and low design temperatures.
  - a. Failure Strain, minimum of 1.5 percent at 1.0 mm/min.
  - b. Failure Stress, minimum of 4.0 Mpa
3. Delete G\*/sin delta requirement for the original binder on all specified grades having algebraic differences of 92 degrees C or greater between the high and low design temperatures.
4. Add G\* and phase angle (delta) requirements for the original binder on all specified grades having an algebraic difference of 92 degrees C between the high and low design temperatures.
  - a. G\* (complex modulus), 1.3 kPa, minimum
  - b. Phase angle (delta), 74 degrees , maximum
5. Add G\* and phase angle (delta) requirements for the original binder on all specified grades having an algebraic difference of 98 degrees C or greater between the high and low design temperatures.
  - a. G\* (complex modulus), 1.3 kPa, minimum
  - b. Phase angle (delta), 71 degrees, maximum
6. Add Toughness and Tenacity Test for all specified grades having algebraic differences of 92 degrees C or greater between the high and low design temperatures.
  - a. Meet a minimum of 75 lb-in 50 lb-in respectively for each test specimen.

## 2.2 ASPHALTIC CEMENT, LIQUID ASPHALTS, REJUVENATING AGENTS

- A. As specified in AASHTO M 226, Table 2 with the following modifications:
1. Delete and replace ductility at 77°F(25°C) with ductility at 39.2°F(4°C) with values as detailed below.

<u>AC - 2.5</u>	<u>AC - 5</u>	<u>AC - 10</u>
50+	<u>AC - 20</u>	
	25+	15+
	5+	

- B. As specified for cationic and anionic emulsified asphalt.
1. All standard Slow Setting (SS, CSS), Medium Setting (MS, CMS), and Rapid Setting (RS, CRS) grades; inclusive of all High-Float designations (HF).
  2. Supply under the Approved Supplier Certification System (ASC).
  3. Meet AASHTO M 208 and M 140.
- C. Conform to the requirements of:

1. Table 1: Cationic Rapid Setting Emulsified Polymerized Asphalt (CRS-2P); or
  2. Table 2: Latex Modified Cationic Rapid Setting Emulsified Asphalt (LMCRS-2); or
  3. Table 3: Cationic Medium Setting Emulsified Asphalt (CMS-2S); or
  4. Table 4: High Float Medium Setting Emulsified Polymerized Asphalt (HRMS-2SP); or
  5. Table 5: High Float Rapid Setting Emulsified Polymerized Asphalt (HFRS-2P); or
  6. Table 6: Cationic Rapid Setting Emulsified Asphalt (CRS-2A, B).
- D. Curing cut-back asphalt:
1. As specified for slow curing (SC) in ASTM D 2026.
  2. As specified for medium curing (MC) in AASHTO M 82.
  3. As specified for rapid curing (RC) in AASHTO M 81.
- E. Conform to requirements for Emulsified Asphalt Pavement Rejuvenating Agent:
1. Table 7: Type B
  2. Table 8: Type B Modified
  3. Table 9: Type C
  4. Table 10: Type D

**Table 1**

<b>Cationic Rapid Setting Emulsified Polymerized Asphalt (CRS-2P)</b>			
<b>Tests</b>	<b>AASHTO Test Method</b>	<b>Min.</b>	<b>Max.</b>
<b>Emulsion</b>			
Viscosity , SFS, 140°F(60°C), sec (Project-site Acceptance/Rejection Limits)	T59	100	400
Settlement (a) 5 days, percent	T 59		5
Storage Stability Test (b) 1 d, 24 h, percent	T 59		
Demulsibility (c) 35 ml, 0.8% sodium dioctyl Sulfosuccinate, percent	T 59	40	
Particle Charge Test	T 59	Positive	
Sieve Test, percent	T 59		0.10
<b>Distillation</b>			
Oil distillate, by vol of emulsion, percent			0
Residue (d), percent			68
<b>Residue from Distillation Test</b>			
Penetration, 77°F(25°C), 100 g, 5 s, dmm	T 49	80	150
Ductility, 39.2°F(4°C), 5 cm/min, cm	T 51	35	
Toughness, lb-in	ASTM D5801	75	
Tenacity, lb-in	ASTM D5801	50	
Solubility in trichloroethylene, percent	T 44	97.5	
<p>(a) The test requirement for settlement may be waived when the emulsified asphalt is used in less than a five-day time; or the purchaser may require that the settlement test be run from the time the sample is received until it is used, if the elapsed time is less than 5 days.</p> <p>(b) The 24-hour (1-day) storage stability test may be used instead of the five-day settlement test.</p> <p>(c) The demulsibility test is made within 30 days from date of shipment.</p> <p>(d) Distillation is determined by AASHTO T 59, with modifications to include a <math>350 \pm 5</math> °F(<math>177 \pm 3</math>°C) maximum temperature to be held for 15 minutes.</p> <p>Modify the asphalt cement prior to emulsification.</p>			

**Table 2**

<b>Latex Modified Cationic Rapid Setting Emulsified Asphalt (LMCRS-2)</b>			
<b>Tests</b>	<b>AASHTO Test Method</b>	<b>Min.</b>	<b>Max.</b>
<b>Emulsion</b>			
Viscosity, SFS, 122 °F(50 °C), Sec (Project Site Acceptance/Rejection Limits)	T59	75	300
Settlement (a) 5 days, percent	T 59		5
Storage Stability Test (b) 1 d, 24 h, percent	T 59		1
Demulsibility (c) 35 ml, 0.8% sodium dioctyl Sulfosuccinate, percent	T 59	40	
Particle Charge Test	T 59	Positive	
Sieve Test, percent	T 59		0.3
<b>Distillation</b>			
Oil distillate, by vol of emulsion, percent			0
Residue (d), percent		65	
<b>Residue from Distillation Test</b>			
Penetration, 77°F(25°C), 100 g, 5 s, dmm	T 49	80	150
Ductility, 39.2 °F(4 °C), 5 cm/min, cm	T51	35	
Toughness, lb-in	ASTM D5801	75	
Tenacity, lb-in	ASTM D5801	50	
<p>(a) The test requirement for settlement may be waived when the emulsified asphalt is used in less than a five-day time; or the purchaser may require that the settlement test be run from the time the sample is received until it is used, if the elapsed time is less than 5 days.</p> <p>(b) May use the 24-hour (1-day) storage stability test instead of the five-day settlement test.</p> <p>(c) Make the demulsibility test within 30 days from date of shipment.</p> <p>(d) Determine distillation by AASHTO T 59, with modifications to include a <math>350 \pm 5</math> °F(<math>177 \pm 3</math>°C) maximum temperature to be held for 15 minutes.</p>			
<b>Co-mill latex and asphalt during emulsification</b>			



**Table 3**

<b>Cationic Medium Setting Emulsified Asphalt (CMS-2S)</b>		
<b>Tests</b>	<b>AASHTO Test Method</b>	<b>Specification</b>
<b>Emulsion</b>		
Viscosity, SSF, 122°F(50°C), sec.	T 59	50 - 450
Percent residue	T 59	60 min
One-day storage stability, percent	T 59	1 max
Sieve, percent	T 59	0.10 max
Particle charge	T 59	Positive
Oil Distillate, percent by volume of emulsion	T 59	5-15
<b>Residue</b>		
Penetration, 77°F(25°C), 100g, 5 sec, dmm	T 59	100-250
Solubility, percent	T 59	97.5 min.

**Table 4**

<b>High Float Medium Setting Emulsified Polymerized Asphalt (HFMS-2P) (a)</b>			
<b>Tests</b>	<b>AASHTO Test method</b>	<b>Min.</b>	<b>Max.</b>
<b>Emulsion</b>			
Viscosity , SSF ,122°F(50°C), sec (Project Site Acceptance/Rejection Limits)	T 59	50	450
Storage Stability Test (a) 1 d, 24 h, percent	T 59		0.1
Sieve Test, percent	T 59		0.1
<b>Distillation</b>			
Oil distillate, by vol of emulsion, percent	T 59	1	7
Residue (c), percent	T 59	65	
<b>Residue from Distillation Test</b>			
Penetration, 77°F(25°C), 100 g, 5 s, dmm	T 49	70	300
Float Test, 140°F(60°C), sec	T 50	1200	300
Solubility in trichloroethylene, percent	T 44	97.5	
Elastic Recovery, 77°F(25°C), percent	T 301	50	
<p>(a) Supply an HFMS-2SP (anionic, polymerized, high-float) as an emulsified blend of polymerized asphalt cement, water, and emulsifiers. Polymerize the asphalt cement with a minimum of 3.0% polymer by weight of the asphalt cement prior to emulsification. After standing undisturbed for a minimum of 24 hours, the emulsion shall be smooth and homogeneous throughout with no white, milky separation, pumpable, and suitable for application through a distributor.</p> <p>(b) May use the 24-hour (1-day) storage stability test instead of the five-day settlement test.</p> <p>(c) Determine the distillation by AASHTO T 59, with modifications to include a <math>350 \pm 5</math> °F(<math>177 \pm 3</math>°C) maximum temperature to be held for 15 minutes.</p>			

**Table 5**

<b>High Float Rapid Setting Emulsified Polymerized Asphalt (HFRS-2P) (a)</b>			
<b>Tests</b>	<b>AASHTO Test method</b>	<b>Min.</b>	<b>Max.</b>
<b>Emulsion</b>			
Viscosity , SFS @ 122°F(50°C), sec (Project Site Acceptance/Rejection Limits)	T 59	50	450
Storage Stability Test (a) 1 d, 24 h, percent	T 59		1
Demulsibility (b) 0.02 N Ca Cl <sub>2</sub> , percent	T 59	40	
Sieve Test, percent	T 59		0.1
<b>Distillation</b>			
Oil distillate, by vol of emulsion, percent	T 59		3
Residue (c), percent	T 59	65	
<b>Residue from Distillation Test</b>			
Penetration, 77°F(25°C), 100 g, 5 s, dmm	T 49	70	150
Float Test, 140°F(60°C), sec	T 50	1200	
Solubility in trichloroethylene, percent	T 44	97.5	
Elastic Recovery, 77°F(25°C), percent	T 301	58	
<p>(a) Supply an HFMS-2SP (anionic, polymerized, high-float) as an emulsified blend of polymerized asphalt cement, water, and emulsifiers. Polymerize the asphalt cement with a minimum of 3.0% polymer by weight of the asphalt cement prior to emulsification. After standing undisturbed for a minimum of 24 hours, the emulsion shall be smooth and homogeneous throughout with no white, milky separation, pumpable, and suitable for application through a distributor.</p> <p>(b) May use the 24-hour (1-day) storage stability test instead of the five-day settlement test.</p> <p>(c) Determine the distillation by AASHTO T 59, with modifications to include a <math>350 \pm 5</math> °F(<math>177 \pm 3</math>°C) maximum temperature to be held for 15 minutes.</p>			

**Table 6**

<b>Cationic Rapid Setting Emulsified Asphalt (CRS-2A,B)</b>			
<b>Tests</b>	<b>AASHTO Test Method</b>	<b>Min</b>	<b>Max</b>
<b>Emulsion</b>			
Viscosity, SSF, 122°F(50°C), sec (Project Site Rejection/Acceptance Limits)	T 59	140	400
Storage stability test, 24 h, percent	T 59		1
Demulsibility, 35 mL 0.8 percent Sodium Dioctyl Sulfosuccinate, percent	T 59	40	
Particle charge test	T 59	Positive	
Sieve test, percent	T 59		0.10
<b>Distillation</b>			
Oil distillate, by volume of emulsion, percent	T 59		0
Residue, percent	T 59	65	
Use PG58-22 and PG64-22 as base asphalt cement for CRS-2A, B, respectively. Specification for high temperature performance: original and RTFO G*/sinδ within 3 °C of grade.			

**Table 7**

<b>Emulsified Type B Asphalt Pavement Rejuvenating Agent Concentrate</b>		
<b>Tests</b>	<b>Test Method</b>	<b>Limits</b>
Viscosity, SSF, 77°F(25°C), sec	AASHTO T 59	25-150
Residue, percent W	AASHTO T 59 (mod) (a)	62 Min.
Sieve Test, percent W	AASHTO T 59	0.10 Max.
5-day Settlement	AASHTO T 59	5.0 Max.
Particle Charge	AASHTO T 59	Positive
Pumping Stability (b)		Pass
<b>Residue from Distillation (a)</b>		
Viscosity @ 140°F(60°C), mm <sup>2</sup> /s	AASHTO T 201	2500-7500
Solubility in 1,1,1 Trichloroethylene, percent	AASHTO T 44	98 Min.
Flash Point, COC	ASTM D 92	204 °C, Min.
Asphaltenes, percent W	ASTM D 2007	15 Max.
Saturates, percent W	ASTM D 2007	30 Max.
Aromatics, percent W	ASTM D 2007	25 Min.
Polar Compounds, percent W	ASTM D 2007	25 Min.
(a) Determine the distillation by AASHTO T-59 with modifications to include a 300 ± 5 °F(149±3°C) maximum temperature to be held for 15 minutes. (b) Test pumping stability by pumping 475 ml of Type B diluted 1 part concentrate to 1 part water, at 77°F(25°C) through a 1/4 inch gear pump operating at 1750 rpm for 10 minutes with no significant separation or coagulation in pumped material.		
Type B: an emulsion of lube oil and/or lube oil extract blended with petroleum asphalt.		

**Table 8**

<b>Emulsified Type B Modified Asphalt Pavement Rejuvenating Agent Concentrate</b>		
<b>Property</b>	<b>Test Method</b>	<b>Limits</b>
Viscosity, SSF, 77°F(25°C), sec	AASHTO T 59	50-200
Residue by distillation or Evaporation (a), percent W	AASHTO T 59	62 Min.
Sieve Test, percent W	AASHTO T 59	0.20 Max.
5-day Settlement, percent W	AASHTO T 59	5.0 Max.
Particle Charge	AASHTO T 59	Positive
Pumping Stability (b)		Pass
<b>Residue from Distillation (a)</b>		
Viscosity (c)275°F(135 °C), cP	ASTM D 4402	150 - 300
Penetration, 77°F(25°C), dmm	AASHTO T 49	180 Min.
Solubility in 1,1,1 Trichloroethylene, percent	AASHTO T 44	98 Min.
Flash Point, COC, °F(°C)	AASHTO T 48	400(204) Min.
Asphaltenes, percent W	ASTM D 2007	20-40
Saturates, percent% W	ASTM D 2007	20 Max.
Polar Compounds, percent W	ASTM D 2007	25 Min.
Aromatics, percent W	ASTM D 2007	20 Min.
PC/S Ratio	ASTM D 2007	1.5 Min.
<p>(a) Determine the distillation by AASHTO T-59 with modifications to include a 300±5°F(149 ± 3°C) maximum temperature to be held for 15 minutes.</p> <p>(b) Pumping stability is tested by pumping 475 ml of Type B diluted 1 part concentrate to 1 part water, at 77°F( 25 °C) through a 1/4 inch gear pump operating at 1750 rpm for 10 minutes with no significant separation or coagulation in pumped material.</p> <p>(c) Brookfield Thermocel Apparatus-LV model at 6 rpm with a #28 spindle at 2-98 torque.</p>		
As required by the Asphalt Emulsion Quality Management system (Materials Manual Part 8-208), the supplier certifies that the base stock contains a minimum of 15 % by weight of Gilsonite Ore. Use the HCL precipitation method as a qualitative test to detect the presence of Gilsonite.		

**Table 9**

<b>Emulsified Type C Asphalt Pavement Rejuvenating Agent Concentrate</b>		
<b>Property</b>	<b>Test Method</b>	<b>Limits</b>
Viscosity,SFS,77°F( 25°C), sec	AASHTO T 59	10-100
Residue (a), percent W (Type C supplied ready to use 1:1 or 2:1.	AASHTO T 59 (a)	30 Min. 1:1 40 Min. 2:1
Sieve Test, percent W (b)		0.10 Max.
5-day Settlement, percent W	AASHTO T 59	5.0 Max.
Particle Charge	AASHTO T 59	Positive
pH (May be used if particle charge test is inconclusive)		2.0 - 7.0
Pumping Stability (c)		Pass
<b>Tests of Residue from Distillation (a)</b>		
Viscosity, 275°F( 135°C), mm <sup>2</sup> /s	AASHTO T 201	475-1500
Solubility in 1,1,1 Trichloroethylene, percent	AASHTO T 44	97.5 Min.
RTFO mass loss, percent W	AASHTO T 240	2.5 Max.
Specific Gravity	AASHTO T 228	0.98 Min.
Flash Point, COC	AASHTO T 48	232 °C, Min.
Asphaltenes, percent W	ASTM D 2007	25 Min., 45 Max.
Saturates, percent W	ASTM D 2007	10 Max.
Polar Compounds, percent W	ASTM D 2007	30 Min.
Aromatics, percent W	ASTM D 2007	15 Min.
(a) Determine the distillation by AASHTO T-59 with modifications to include a 300± 5°F(149 ± 3°C) maximum temperature to be held for 15 minutes. (b) Test method identical to AASHTO T 59 except that distilled water is used in place of 2 % sodium oleate solution. (c) Test pumping stability by pumping 475 ml of Type diluted 1 part concentrate to 1 part water, at 77°F(25°C) through a 1/4 inch gear pump operating at 1750 rpm for 10 minutes with no significant separation or coagulation in pumped material.		
As required by the Asphalt Emulsion Quality Management system (Materials Manual Part 8-208), the supplier certifies that the base stock contains a minimum of 10 % by weight of Gilsonite ore. Use the HCL precipitation method as a qualitative test to detect the presence of Gilsonite.		

**Table 10**

<b>Emulsified Type D Asphalt Pavement Rejuvenating Agent Concentrate</b>		
<b>Property</b>	<b>Test Method</b>	<b>Limits</b>
Viscosity, SFS, 77°F(25°C), sec	AASHTO T 59	30-90
Residue, (a) percent W	AASHTO T 59 (mod) (a)	65
Sieve Test, percent W	AASHTO T 59	0.10 Max.
pH		2.0 - 5.0
<b>Residue from Distillation (c)</b>		
Viscosity, 140°F(60°C), cm <sup>2</sup> /s	AASHTO T 201	300-1200
Viscosity, 275°F(135°C), mm <sup>2</sup> /s	AASHTO T 201	300 Min.
Modified Torsional Recovery (b)	CA 332 (Mod)	40 % Min.
Toughness, 77°F(25°C), in-lb	ASTM D 5801	8 Min.
Tenacity, 77°F( 25°C), in-lb	ASTM D 5801	5.3 Min.
Asphaltenes, percent W	ASTM D 2007	16 Max.
Saturates, percent W	ASTM D 2007	20 Max.
(a) California test method #331 for recovery of residue. (b) Torsional recovery measurement to include first 30 seconds. (c) Determine the distillation by AASHTO T-59 with modifications to include a 300±5°F(149 ± 3°C) maximum temperature to be held for 15 minutes.		

### **2.3 HOT-POUR CRACK SEALANT FOR BITUMINOUS CONCRETE**

- A. Combine a homogenous blend of materials to produce a sealant meeting properties and tests in Table 11.
- B. Packaging and Marking: Supply sealant pre-blended, pre-reacted, and pre-packaged in lined boxes weighing no more than 30 lb.
  1. Use a dissolvable lining that will completely melt and become part of the sealant upon subsequent re-melting.
  2. Deliver the sealant in the manufacturer's original sealed container.



3. Clearly mark each container with the manufacturer's name, trade name of sealant, batch or lot number, and recommended safe heating and application temperatures.

**Table 11**

<b>Hot-Pour Bituminous Concrete Crack Sealant</b>			
<b>Application Properties:</b>			
Workability:	Pour readily and penetrate 0.25 in and wider cracks for the entire application temperature range recommended by the manufacturer.		
Curing:	No tracking caused by normal traffic after 45 minutes from application.		
Asphalt Compatibility: ASTM D 5329, Sec 14.	No failure in adhesion. No formation of an oily ooze at the interface between the sealant and the bituminous concrete or softening or other harmful effects on the bituminous concrete.		
Material Handling:	Follow the manufacturer's safe heating and application temperatures.		
<b>Test Method</b>	<b>Property</b>	<b>Minimum</b>	<b>Maximum</b>
AASHTO T51	Ductility, modified, 1cm/min, 39.2°F(4°C),cm	30	
UDOT method 967	Cold Temperature Flexibility	no cracks	
AASHTO T 300 (a)	Force-Ductility, lbf		4
ASTM D 5329	Flow 140°F(60°C), 5 hrs 75 ° angle, mm		3
ASTM D 3405 (b )	Tensile-Adhesion, modified	300%	
AASHTO T 228	Specific Gravity, 60°F(15.6°C)		1.140
ASTM D 5329	Cone Penetration, 77°F(25°C), 150 g, 5 sec., dmm		90
ASTM D 5329	Resilience, 77°F(25°C), 20 sec., percent	30	
ASTM D 4402	Viscosity, 380°F(193.3°C), SC4-27 spindle, 20 rpm, cP		2500
ASTM D 5329	Bond as per ASTM D 1190, Section 6.4		Pass
(a) Maximum of 4 lbf during the specified elongation of 30 cm @ 1 cm/min , 39.2°F(4 °C). (b) Use ASTM D 3405, Section 6.4.1. Delete bond and substitute tensile-adhesion test in accordance to D 5329.			

**PART 3 EXECUTION Not used.**

Asphalt Material  
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March 14, 2000

**SUPPLEMENTAL SPECIFICATION**

**SECTION 02746 M**

**HYDRATED LIME**

Add the following to PART 1 GENERAL

**1.3 QUALITY ASSURANCE**

- A. Prequalification: Hydrated Lime, through UDOT's Quality Management Plan for Hydrated Lime.

January 8, 2002

## **SUPPLEMENT SPECIFICATION**

### **SECTION 02765**

## **PAVEMENT MARKING PAINT**

Delete Section 02765 and replace with the following:

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Furnish VOC Compliant Solvent Based or Acrylic Water Based pavement marking paint meeting Federal Specification TTP-115 F for Low Volatile Organic Compounds (VOC) of .15 kg/L.
- B. Apply to asphaltic or concrete pavement as edge lines, center lines, broken lines, guide lines, symbols and other related markings.
- C. Remove pavement markings.

#### **1.2 REFERENCES**

- A. AASHTO M 247: Glass Beads Used in Traffic Paint.
- B. ASTM D 562: Consistency of Paints Measuring Krebs Unit (KU) Viscosity Using the Stormer-Type Viscometer.
- C. ASTM D 711: No-Pick-Up Time of Traffic Paint.
- D. ASTM D 2205: Selection of Tests for Traffic Paints
- E. ASTM D 2743: Uniformity of Traffic Paint Vehicle Solids by Spectroscopy and Gas Chromatography.
- F. ASTM D 3723: Pigment Content of Water-Emulsion Paints
- G. ASTM D 3960: Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings.
- H. ASTM D 4451: Pigment Content of Paints
- I. ASTM D 5381: X-Ray Fluorescence (XRF) Spectroscopy of Pigments and Extenders.
- J. Federal Standards 595B, 37875, 33538, and 11105.

### 1.3 ACCEPTANCE

- A. UDOT ENGINEER:
1. Randomly samples pavement marking paint and submits to Central Chemistry Lab for acceptance.
  2. Randomly generates the location of each test and removes all loose or excess beads from the line prior to testing.
  3. Visually inspects each line to verify bead adhesion and compliance with specified line dimensions requirements.
  4. Verifies that the paint and beads are being applied within specified tolerances a minimum of once each production day.
  5. Verify quantities used by measuring both paint and bead tanks prior to and after application.
- B. Repaint any line or symbol failing to meet bead adherence and dimensional requirements.
- C. Repaint any line or symbol failing to meet the minimum application requirements for paint or beads.

## PART 2 PRODUCTS

### 2.1 PAINT

- A. Choose an approved pavement marking paint from the UDOT Research Division “Accepted Products Listing.” Follow Federal Standards 595B, 37875, 33538, and 11105. Meet the following requirements for VOC Compliant Solvent Based Paint or Acrylic Water Based Paint:

CIELAB (L*a*b*) D65/10°		
White	Yellow	Red
L* 91.9 to 95.6	L* 70.0 to 72.7	L* 31.4 to 33.4
a* -1.8 to -2.1	a* 22.5 to 24.8	a* 51.6 to 52.6
b* 3.8 to 2.2	b* 89.7 to 73.9	b* 34.1 to 35.1

1. No-track time: Not more than 5 minutes when tested according to ASTM D 711.
2. Volatile Organic Compounds Content: Less than .15 kg/L ASTM D 3960.
3. Free of lead, chromium, or other related heavy metals ASTM D 5381.

4. Pigment: Percent by weight: Acrylic Water Based minimum of  $62.0 \pm 2.0$   
VOC Compliant Solvent minimum of 52.0. ASTM D 3723.
5. Total Solids: Percent by weight: Acrylic Water Based minimum of 77.0  
VOC Compliant Solvent minimum of 70.0. ASTM D 2205.
6. Acrylic water based paint must contain a minimum of 40%, by weight,  
100% acrylic cross-linkable emulsion as determined by infrared analysis  
and other chemical analysis available to UDOT ASTM D 2205 and UDOT  
Manual of Instruction Section 996.
7. VOC compliant solvent based paint must contain 37.5%, by weight,  
copolymer alkyd-resin ASTM D 2205.
8. ASTM D 562, ASTM D 2743, ASTM D 4451 and ASTM D 5381: Tests  
used to verify paint samples meet "Accepted Products Listing".

## **2.2 GLASS SPHERE (BEADS) USED IN PAVEMENT MARKING PAINT**

- A. Specific Properties:
  1. Meet AASHTO M 247.
  2. Meet type II, uniform gradation.

## **PART 3 EXECUTION**

### **3.1 PREPARATION**

- A. Line Control.
  1. Establish control points at 30 m intervals on tangent and at 15.25 m intervals on curves.
  2. Maintain the line within 50 mm of the established control points and mark the roadway between control points as needed.
    - a. Remove paint that is not placed within tolerance of the established control points and replace at no expense to the Department. Refer to paragraph 3.4
- B. Remove dirt, loose aggregate and other foreign material and follow manufacturer's recommendations for surface preparation.

### **3.2 APPLICATION**

- A. Pavement Marking Paint: Apply at the following rates:
  1. 100 mm Solid Line: From 21 to 28 m/L
  2. 100 mm Broken Line: From 87 to 113 m/L
  3. 200 mm Solid Line: From 11 to 14 m/L
- B. Replace pavement markings that are less than 14 wet mils in thickness.

- C. No payment for pavement markings placed in excess of 18 wet mils in thickness.
- D. Painted Legends and Symbols 1 liter per 2.5 square meters
- E. Glass Sphere (Beads): Apply a minimum of 1 kg/L of paint, the full length and width of line and pavement markings.
- F. Begin striping operations no later than 24 hours after ordered by the Engineer.
- G. At time of application apply lines and pavement markings only when the air and pavement temperature are:
  - 1. 5 degrees C and rising for VOC Compliant Solvent Based Paint.
  - 2. 10 degrees C and rising for Acrylic Water Based Paint.
- H. Comply with Traffic Control Drawing 745-2J

### **3.3 CONTRACTOR QUALITY CONTROL**

- A. Application Rate: Verify that the paint and beads are being applied within specified tolerances prior to striping.

### **3.4 REMOVE PAVEMENT MARKINGS**

- A. Use one of these removal methods:
  - 1. Grinding
  - 2. High pressure water spray
  - 3. Sand blasting
  - 4. Shot blasting.
- B. Use equipment specifically designed for removal of pavement marking material.

END OF SECTION

January 8, 2002

## **SUPPLEMENT SPECIFICATION**

### **SECTION 02768**

## **PAVEMENT MARKING MATERIALS**

(Warranty Specification)

Delete Section 02768 and replace with the following:

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Methods and materials for installing pavement marking materials including Pavement Marking Tape, Solvent-Free and Lead-Free Epoxy, Methyl-Methacrylate, and Thermoplastic legends.

#### **1.2 RELATED SECTIONS**

- A. Section 01554: Traffic Control.

#### **1.3 SUBMITTALS**

- A. Manufacturer Warranty:
  - 1. Provide a full warranty covering 100 percent of the pavement marking materials.
    - a. Manufacturer is responsible for quality control of the materials, proper placement by the Contractor or subcontractor, and all other factors that affect the service life of the materials.
    - b. In the event of a performance failure, remove and/or replace 100 percent of the markings for all failed sections at no cost to Department.
    - c. Failed sections are defined in this Section, Part 2 for each pavement marking material.
- B. Warranty Bond:
  - 1. The manufacturer will provide a warranty bond for the total bid price of the material. The total bid price will be calculated by using the quantity of pavement marking material listed in the engineers estimate and the

- average unit bid price for said material obtained from the Construction Division's "Project Development Business System" (PDBS).
- 2. Warranty period covers the specified service life of the materials, and begins after all pavement markings are installed and accepted.
- 3. Submit proof of bond to the Engineer before placing the material.

C. Traffic Control: Refer to Section 01554.

#### **1.4 DELIVERY, STORAGE, AND HANDLING**

A. In accordance with manufacturer's recommendations.

B. Provide Material Safety Data Sheets (MSDS) upon delivery of material.

#### **1.5 MANUFACTURER SERVICE REQUIREMENT**

A. Provide technical support to the Contractor during the placement of the marking materials, including information about handling, storage, placement and other training that may preserve the quality of the installed markings.

#### **1.6 SERVICE LIFE TESTING**

A. Department will perform service life testing.

B. Performance measures: Retro-reflectivity, color contrast and stability, and durability under all traffic volumes and wear conditions, unless stated otherwise.

C. Retro-reflectivity is measured using a Federally approved instrument (30 m geometry).

D. When performing Service Life Testing, take readings on clean surface areas free of debris.

### **PART 2 PRODUCTS**

#### **2.1 PAVEMENT MARKING TAPE**

A. Preformed adhesive tape with a raised profile for longitudinal lines on all pavement surfaces.

B. Preformed adhesive tape with a flat or raised profile for legends and symbols on all pavement surfaces.



- C. Minimum service life for the following applications, under all traffic volumes and wear conditions:
  - 1. Longitudinal lines: 48 months.
  - 2. Legends and symbols: 18 months.
- D. Performance Measures: Retro-reflectivity, Color Contrast/stability, and Durability.
  - 1. Minimum Retro-reflectivity:
    - a. White Longitudinal Lines: 125 millicandelas.
    - b. Yellow Longitudinal Lines: 125 millicandelas.
    - c. Legends and Symbols: 125 millicandelas.
  - 2. Minimum Color Contrast and Stability: For white markings, provide a minimum yellowness index of 30 when measured with a portable colorimeter (XYZ C/2).
  - 3. Minimum Durability Level: 90 percent of the longitudinal line on any 300 m segment or 90 percent of the legend and symbol, must be present.
  - 4. Failure to meet any of the specified performance measures on at least 90 percent of the longitudinal line, in any 300 m segment, or 90 percent of a legend or symbol is considered a complete failure of that marking. Replace under the warranty terms.

## **2.2 SOLVENT-FREE EPOXY**

- A. 100 percent lead free, 2 component (resin and hardener) epoxy system for longitudinal lines, legends and symbols and for all pavement surfaces.
- B. Minimum service life for the following applications, under all traffic volumes and wear conditions:
  - 1. Type 1 - Fast Dry:
    - a. Longitudinal: Center, skip, and edge lines: 24 months.
    - b. Legends and symbols: 12 months.
  - 2. Type 2 - Slow Dry
    - a. Longitudinal: Center, skip, and edge lines: 48 months.
    - b. Legends and symbols: 24 months.
- C. Performance Measures: Retro-reflectivity, Color Contrast/stability, and Durability.
  - 1. Minimum Retro-reflectivity:
    - a. White Longitudinal Lines: 125 millicandelas.
    - b. Yellow Longitudinal Lines: 125 millicandelas.
    - c. Legends and Symbols: 125 millicandelas.
  - 2. Minimum Color Stability: Yellowness Index of White Paint on concrete or asphalt surfaces: 30 or less.
  - 3. Minimum Durability Level: 90 percent of the longitudinal line on any

- 4. 300 m segment or 90 percent of the legend and symbol, must be present. Failure to meet any of the specified performance measures on at least 90 percent of the longitudinal line, in any 300 m segment, or 90 percent of a legend or symbol is considered a complete failure of that marking. Replace under the warranty terms.
- D. Retain a one pint sample from each lot or batch used.
  - 1. 24 months for Type I
  - 2. 48 months for Type II.
- E. Repaint pavement markings that are below 16 wet mils in thickness.
  - 1. Contractor will not be paid for materials placed in excess of 20 wet mils in thickness.
- F. Use beads according to manufacturer's recommendations

### **2.3 METHYL METHACRYLATE**

- A. 2 component pavement marking system compliant with federal VOC regulations used for longitudinal lines, legends and symbols and for use on all pavement surfaces.
- B. Profiled, Non Profiled, Inlaid, Inverted Profile w/bump, Inverted Profile w/o bump, Spray.
- C. Minimum service life for the following applications, under all traffic volumes and wear conditions:
  - 1. Longitudinal lines: 48 months.
  - 2. Legends and Symbols: 18 months.
- D. Performance Measures: Retro-reflectivity and Durability.
  - 1. Minimum retro-reflectivity:
    - a. White Longitudinal markings: 125 millicandelas.
    - b. Yellow Longitudinal markings: 125 millicandelas.
    - c. Legends and Symbols : 125 millicandelas.
  - 2. Minimum Durability Level: 90 percent of the longitudinal line on any 300 m segment or 90 percent of the legend and symbol, must be present.
  - 3. Failure to meet any of the specified performance measures on at least 90 percent of the longitudinal line, in any 300 m foot segment, or 90 percent of a legend or symbol is considered a complete failure of that marking. Replace under the warranty terms.

- E. Remove and replace pavement marking that is below 80 wet mils in thickness.
  - 1. Contractor will not be paid for materials placed in excess of one hundred wet mils in thickness.
- F. Use beads according to manufacturer's recommendations.

## **2.4 THERMOPLASTIC**

- A. Used for legends and symbols only on all pavement surfaces.
- B. Heat-fused preformed and Hot Melt pavement marking materials.
- C. Minimum Service Life for Legends and Symbols, under all traffic volumes and wear conditions:
  - 1. Legends and Symbols: 24 months.
- D. Performance Measures: Retro-reflectivity and Durability.
  - 1. Minimum Level of Retro-reflectivity: 125 millicandelas.
  - 2. Minimum Durability: 90 percent of each legend or symbol must be present.
  - 3. Failure to meet any of the specified performance measures on at least 90 percent of the legend or symbol is considered a complete failure of that legend or symbol. Replace under the warranty terms.
- E. Hot-Melt Thermoplastic: Remove and replace legends and symbols that are below 80 wet mils in thickness.
  - 1. Contractor will not be paid for materials placed in excess of 100 wet mils in thickness.

## **PART 3 EXECUTION**

### **3.1 PREPARATION**

- A. Conduct other surface preparations in accordance with manufacturer's recommendations.

### **3.2 APPLICATION**

- A. Apply Pavement Marking Materials according to manufacturers's specifications.

END OF SECTION

January 8, 2002

## **SUPPLEMENT SPECIFICATION**

### **SECTION 02785**

## **CHIP SEAL COAT**

**Delete Section 02785 “Seal Coat” from the Standard Specifications and replace with the following:**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Materials and procedures for applying liquid or emulsified asphalt on a cleaned surface followed with an application of cover material and bituminous flush coat.
- B. Cover materials.

#### **1.2 RELATED SECTIONS**

- A. Section 01558: Temporary Pavement Markings.
- B. Section 01455: Materials Quality Requirements.

#### **1.3 REFERENCES**

- A. AASHTO M 140: Emulsified Asphalt.
- B. AASHTO T 11: Materials Finer Than 75  $\mu\text{m}$  (No. 200) Sieve in Mineral Aggregates by Washing.
- C. AASHTO T 19: Unit Weight and Voids in Aggregate.
- D. AASHTO T 27: Sieve Analysis of Fine and Coarse Aggregates.
- E. AASHTO T 40: Sampling Bituminous Materials.
- F. AASHTO T 96: Resistance to Abrasion of Small Size Coarse Aggregate by Use of the Los Angeles Machine.
- G. AASHTO T 104: Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.

- H. AASHTO T 278: Surface Frictional Properties Using the British Pendulum Tester.
- I. AASHTO T 279: Accelerated Polishing of Aggregates Using the British Wheel.
- J. ASTM D 4791: Flat Particles elongated Particles or Flat and Elongated particles in Coarse Aggregate.
- K. ASTM D 5821: Determining the Percentage of Fractured Particles in Coarse Aggregate.
- L. UDOT 945: Dynamic Stripping Test of Bitumen-Aggregate Mixtures.

## **PART 2 PRODUCTS**

### **2.1 PERFORMANCE GRADED PG BINDER**

- A. PG58-22 following Section 02745.
- B. PG64-22 following Section 02745.

### **2.2 ANIONIC EMULSIONS**

- A. RS-2 following AASHTO M 140.

### **2.3 CATIONIC EMULSIONS**

- A. CRS-2A following Section 02745.
- B. CRS-2B following Section 02745.
- C. CRS-2P following Section 02745.
- D. LMCRS-2 following Section 02745.

### **2.4 HIGH FLOAT EMULSIONS**

- A. HFRS-2P following Section 02745
- B. HFMS-2 following AASHTO M 140
- C. HFMS-2P following Section 02745

### **2.5 FLUSH COAT**

- A. Use one of the following emulsions, following section 02745, diluted two parts concentrate to one part water by the Manufacturer, and as agreed upon by the ENGINEER:
1. CSS-1
  2. CSS-1h
  3. SS-1
  4. SS-1h
  5. HFMS-2P

## 2.6 COVER MATERIAL

- A. Use crusher processed virgin aggregate consisting of natural stone, gravel, or slag meeting the requirements of Table 1.

Table 1 Chip Seal Cover Material Properties		
Unit Weight	AASHTO T 19	1600kg/m <sup>3</sup> , max
One Fractured Face	ASTM D 5821	95%, min.
Two Fractured Face	ASTM D 5821	90%, min.
LA wear, see Note 1	AASHTO T 96	30% max.
Soundness	AASHTO T 104	10 % max.
Flats & Elongates, 1:3 ratio	ASTM D 4791	5% max.
Stripping, see Note 1	Materials MOI 8-945	10 % max.
Polishing, see Note 1	AASHTO T 278, T 279	31 min.
Note 1: The Department has the right to waive this requirement if the aggregates have proven acceptable through successful past performance as determined by the Engineer.		

- B. Grade with the following limits to meet the specified test standard in AASHTO T 27 and T 11

**Table 2**

<b>Sieve Size</b>	<b>Percent Passing</b>		
	<b>Type A</b>	<b>Type B</b>	<b>Type C</b>
12.5 mm	100		100
9.5 mm	85-100		70-90
4.75 mm	0-20	100	0-5
2.36 mm	0-5	85-100	0-3
1.18 mm		10-25	
300 µm		0-5	
75 µm	0-1	0-2	0-1

**2.7 BLOTTER MATERIAL**

- A. Refer to Section 02748, Paragraph 2.1, B.

**2.8 TEMPORARY PAVEMENT MARKERS**

- A. Refer to Section 01558.

**2.9 SOURCE QUALITY ACCEPTANCE- CHIP SEAL COAT ASPHALT EMULSION**

- A. Refer to Minimum Sampling and Testing Requirements Section 02745
1. Provide a separate oil sampler meeting the requirements of AASHTO T 40 for each delivered truck and trailer not equipped with sampling valves that meet AASHTO T 40. Do not place any chip seal coat emulsion from equipment not meeting this requirement.
  2. Take the samples in the presence of Department personnel using their sample bottles.
  3. Clean and dry the oil sampler after each use following applicable environmental regulations.
  4. Do not place chip seal coat emulsion until the respective viscosity test meets the specification following Section 02745.

## 2.10 SOURCE QUALITY CONTROL - COVER MATERIAL

- A. DEPARTMENT will sample at a frequency according to Table 3.

**Table 3**

<b>Stockpiles - Samples and Tests</b>	
<b>Lot Quantity Megagram</b>	<b>Number of Samples</b>
Lot $\geq$ 2300	5
1400 < Lot < 2300	4
Lot $\leq$ 1400	3

- B. The DEPARTMENT will sample for acceptance either at the source of supply or at the project stockpile. If material previously accepted at the supply source is suspect when delivered to the project, the Department will retest following Section 01455, paragraph 1.6, "Samples, Tests, and Referenced Cited Specifications."



**Table 4**

<b>Cover Material (Type A, B, and C)</b> <b>Acceptance Schedule For Gradation (Percent passing)</b>				
Sieve Gradation Size	Pay Factor*	Acceptance Band Type A	Acceptance Band Type B	Acceptance Band Type C
	Cover Material	Average of Tests	Average of Tests	Average of Tests
12.5 mm	1.00 0.95 0.90 0.85 Reject	100.0 99.0 98.0 97.0 < 96.9		100.0 99.0 98.0 97.0 <96.9
9.5 mm	1.00 0.95 0.90 0.85 Reject	85.0 - 100 84.0 - 84.9 83.0 - 83.9 82.0 - 82.9 < 81.9		70.0 - 90.0 69.5 - 91.5 69.2 - 92.0 68.0 - 92.0 <67.9 and >92.1
4.75 mm	1.00 0.95 0.90 0.85 Reject	0 - 20 20.1 - 21 21.1 - 22 22.1 - 23 > 23.1	100.0 99.0 98.0 97.0 < 96.9	0 - 5.0 5.1 - 5.5 5.6 - 6.0 6.1 - 7.0 > 7.1
2.36 mm	1.00 0.95 0.90 0.85 Reject	0 - 5 5.1 - 5.5 5.6 - 6.0 6.1 - 7.0 > 7.1	85.0 - 100 84.0 - 84.9 83.0 - 83.9 82.0 - 82.9 < 81.9	0.0 - 3.0 3.1 - 3.5 3.6 - 4.0 4.1 - 5.0 > 5.1
1.18 mm	1.00 0.95 0.90 0.85 Reject		10.0 - 25.0 9.5 - 25.5 9.0 - 26.0 8.5 - 26.5 < 8.4 and > 26.6	
300 µm	1.00 0.95 0.90 0.85 Reject		0.0 - 5.0 5.1 - 5.5 5.6 - 6.0 6.1 - 7.0 > 7.1	
75 µm	1.00 0.75 0.50 Reject	0.0 - 1.0 1.1 - 1.5 1.6 - 2.0 >2.1	0.0 - 2.0 2.1 - 2.5 2.6 - 3.0 > 3.1	0.0 - 1.0 1.1 - 1.5 1.6 - 2.0 >2.1

\* use the lowest individual pay factor for combined gradation

## **PART 3      EXECUTION**

### **3.1      PREPARATION**

- A.      Clean the surface of all dirt, sand, dust, and other objectionable material to the satisfaction of the Engineer.
- B.      Protect all structures from being spattered or marred including guardrail, guide posts, concrete barriers, parapet walls, etc.

### **3.2      LIMITATIONS**

- A.      Complete all work, excluding bituminous flush coat , between May 15 and August 31.
- B.      Do not place any chip seal coat if the Engineer determines that excess moisture is present in the pavement structure.
- C.      Lay seal coat when the pavement surface temperature is:
  - 1.      21°C in the shade and rising.
  - 2.      Pavement temperature is less than 58° C.
- D.      Apply bituminous flush coat material, no later than 7 days after the application of the cover material , or as directed by the Engineer.
- E.      Apply bituminous flush coat material when the air temperature in the shade is 10° C and rising.
- F.      Do not apply bituminous flush coat material during fog, rain, or other adverse conditions.
- G. Complete all chip seal operations, including sweeping during day light hours.

### **3.3      COVER MATERIAL STOCKPILE**

- A.      Construct on a clean area to minimize contamination
- B.      Construct to facilitate uniform dampening. Avoid excess moisture

### **3.4      TEMPORARY PAVEMENT MARKER APPLICATION**

- A.      Refer to Section 01558, Temporary Pavement Markings.

### **3.5      ASPHALT MATERIAL /COVER MATERIAL APPLICATION**

- A. Use a distributor equipped with a hydrostatic system capable of maintaining a tolerance of  $\pm 0.14 \text{ L/m}^2$ . Spray the application at a rate sufficient to obtain 60 to 70 percent chip embedment after the completion of rolling operations as determined by the Engineer. Application rates may vary throughout the project depending on existing conditions.
  - 1. Equipment is subject to inspection and approval by the Engineer.
- B. Apply the asphalt emulsion at a minimum temperature of  $63^\circ \text{ C}$ .
- C. Provide blotter material meeting the requirements of Section 02748 and application equipment approved by the Engineer at the Project location prior to beginning seal coat work.
- D. Place building paper adjacent to the transverse construction joint prior to starting each spraying operation. Maintain the control valve to act instantaneously, both in start-up and cut-off.
- E. Locate longitudinal joints within 150 mm of the traffic lane line location or within 300 mm of the center of a traffic lane. Construct the meet lines with no skips or voids between adjacent passes. Avoid a double thickness of cover material.
- F. Spread the cover material maintaining a tolerance of  $\pm 0.5 \text{ kg/m}^2$ .
  - 1. Equipment is subject to inspection and approval by the Engineer.
- G. Calibrate the spreader at the beginning of each day and as often as required.

#### **Approximate Spread Rates**

Unit Weight $\text{kg/m}^3$	Application Rate $\text{kg/m}^2$
960-1040	9.25
1040-1120	10.00
1120-1200	10.75
1200-1280	11.25
1280-1360	12.00
1360-1440	12.75
1440-1520	13.50
1520-1600	14.00

### **3.6 SURFACE ROLLING**

- A. Use a minimum of two pneumatic-tire rollers in a longitudinal direction to roll surface after the cover material has been spread.
- B. Use a minimum of three passes to seat the cover material.
  - 1. A pass is defined as traveling in one direction only. Two passes would be rolling up and back.
- C. Control bleeding with blotter material and as directed by the Engineer.
- D. Set the roller speed to prevent bouncing or skidding. Reduce roller speeds during directional changes to prevent tearing of the surface. Repair all damage done to the seal coat by the rollers.
- E. Synchronize the speed of the distributor and chip spreader with that of the rolling operation.
- F. Sweep excess cover material off the roadway after the emulsion has set.  
Remove excess cover material to the satisfaction of the Engineer before opening the roadway to traffic.

### **3.7 BITUMINOUS FLUSH COAT APPLICATION**

- A. Clean the surface of all dirt, sand, dust, loose chips, and other objectionable material to the satisfaction of the Engineer.
- B. Apply the bituminous flush coat at a rate of  $0.50 \text{ L/m}^2$ . Keep traffic off the flushed surface until the bituminous material has set sufficiently to prevent tracking or pick-up.
- C. Provide vendors bill of lading certifying the material was diluted in accordance to line A of paragraph 2.5, "Flush Coat." The Department may sample and test this material for specification compliance.

### **3.8 TRAFFIC CONTROL**

- A. Refer to Section 01554.

END OF SECTION

March 14, 2000

**SUPPLEMENTAL SPECIFICATION**

**SECTION 02822 M**

**RIGHT OF WAY FENCE AND GATE**

Delete line B of paragraph 1.2 “References,” and replace with the following:

- B. AASHTO M 232 Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

December 12, 2000

**SUPPLEMENTAL SPECIFICATION**

**SECTION 02841 M**

**TRAFFIC BARRIERS**

Delete line D.2 of paragraph 2.8, "Pre-cast Concrete Barrier," and replace with the following:

2. They are cured and sealed according to specification.

**SUPPLEMENTAL SPECIFICATION**

**SECTION 02843 M**

**ATTENUATION/END TREATMENT**

Delete line B of paragraph 1.1.

Delete PART 2 PRODUCTS, and replace with the following:

**PART 2 PRODUCTS**

**2.1 ATTENUATION/END SECTION**

- A. Select from the current approved products list, UDOT Guidelines for Attenuators/End Sections.
  - 1. Specify date by special provision.
  - 2. Maintained by the Division of Traffic and Safety.
  - 3. Also available through the UDOT Internet home page, accessed through Engineering Services “Specifications, Drawings, and Plans,” Web page.
- B. Types:
  - 1. **Attenuator Type A:**
    - a. To protect fixed hazards greater than 1.5 m wide within 5 m of traveled way, with less than 30.5 m of longitudinal space in front of the hazard.
    - b. For use to protect concrete barrier ends, bridge parapets or piers, and other hazards as a stand alone system.
    - c. A transition element is required to protect single or double faced guardrail ends.
    - d. These systems may be used on shoulders or in medians where a recover area behind system and hazard is unattainable.
    - e. These systems should be used in areas where minimal impacts are anticipated, one impact every three or more years.
  - 2. **Attenuator Type B:**
    - a. To protect fixed hazards less than 1 m wide within 5 m of traveled way, with less than 30.5 m of longitudinal space in front of the hazard.
    - b. For use to protect concrete barrier ends, bridge parapets or piers, and other hazards as a stand alone system.
    - c. A transition element is required to protect single or double faced guardrail ends.

- d. May be used on shoulders or in medians, where a recover area behind the system and hazard is unattainable.
  - e. Should be used in areas where minimal impacts are anticipated, one impact every three or more years.
3. **Attenuator Type C:**
- a. To protect fixed objects 1 m wide or less within 5 m of traveled way, and longitudinal space in front of the hazard greater than 30.5 m.
  - b. For use with single or double faced guardrail, transition element required for concrete barrier or bridge parapet.
  - c. May be used on shoulders. Shoulder application requires a recovery area of 22m x 6m.
  - d. May be used on medians. Median application requires a recover area of no less than 22m x 6 m on both sides of the system.
  - e. Should be used in area where minimal impacts are anticipated, one impact every three or more years.
4. **Attenuator Type D:**
- a. To protect fixed hazards within 5 m of traveled way.
  - b. For use to protect concrete barrier ends, bridge parapets or piers, or other hazards as a stand alone system.
  - c. A transition element is required for use with single and double face guardrail.
  - d. May be used on shoulders or in medians.
  - e. Should be used in areas where one impact per year is anticipated or when repair history indicates two or more impacts over a three year period.
5. **Attenuator Type E - Sand Barrel Arrays:**
- a. To protect fixed hazards outside 5 m of traveled way and there is an unlimited amount of space.
  - b. Can be configured to meet most width requirements.
  - c. For use to protect concrete barrier ends, bridge parapets or piers, or other hazards as a stand alone system.
6. **End Section Type F:**
- a. To protect concrete barrier or bridge parapets with less than 38 m of longitudinal space in front of the hazard.
7. **End Section Type G:**
- a. To protect the approach end of single face w-beam guardrail.
  - b. Should be used to protect concrete barrier or bridge parapet with unlimited longitudinal space (> 38 m) in front of the hazard when proper transition element is installed.



- c. Should be used when a system running tangent to the roadway is desired.
- 8. **End Section Type H:**
  - a. To protect the approach end of single face w-beam guardrail.
  - b. Should be used to protect concrete barrier or bridge parapet with unlimited longitudinal space (> 38 m) in front of the hazard when proper transition element is installed.
  - c. These systems should be used when a system requiring a flare away from the roadway is desired.

Delete line D of paragraph 3.1 Installation, and replace with the following:

- D. Grade approaches to the system to 1:10 or flatter, for a minimum of 15.25 meters prior to front and sides of the systems.
  - 1. System will not be installed with curb and gutter.
  - 2. Refer to UDOT Guidelines for Attenuators/End Sections for further detail.

December 11, 2001

## **SUPPLEMENTAL SPECIFICATION**

### **SECTION 02891 M**

## **TRAFFIC SIGNS**

Add the following to 1.3 "References":

- D. ASTM A153: Zinc Coating (Hot-Dip) on Iron and Steel Hardware
- E. ASTM A500: Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
- F. ASTM A513: Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing
- G. ASTM A653: Steel, Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process
- H. ASTM A1011: Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability

Delete line D of paragraph 2.1 "Materials" and replace with the following:

- D. Posts
  - 1. Timber Sign Post (P1)
    - a. Follow Section 06055
  - 2. Tubular Steel Sign Post (P2)
    - a. Post: ASTM A513
    - b. Finish: Galvanize ASTM A653
    - c. Shape: As shown, wall thickness 0.080
    - d. Color: Powder coated as required

3. Square Steel Sign Post (P3)
  - a. Post: ASTM A1011 Grade 50
  - b. Finish: Galvanize ASTM A653
  - c. Shape: 12 gauge or 10 gauge steel
  - d. Color: Powder coated as required
4. Slip Base Tubular Steel Sign Post (P4)
  - a. Post ASTM A500 Grade C; 46,000 psi minimum yield
  - b. Finish: Galvanize ASTM A153 B
  - c. Shape: As shown; schedule 80
  - d. Color: Powder coated as required
5. Steel Sign Post (P5)
  - a. Follow Section 05120

December 12, 2000

## **SUPPLEMENTAL SPECIFICATION**

### **SECTION 02892 M**

## **TRAFFIC SIGNAL**

February 8, 2000

Add the following to paragraph 1.1, Section Includes:

- B. Materials and procedures for installing traffic counting loop detectors.

Delete line A.1  $R_d$  of paragraph 1.5, Acceptance Testing, and replace with the following:

$R_d$  = Resistance of Loop =  $P.T.R_c$  (See Loop Resistance Table below)

Delete line A of paragraph 3.6, Install Detector Loops, and replace with the following:

- C. Follow Standard Drawings 745-55L and 745-55N.

December 12, 2000

Delete line D of paragraph 3.1 "Preparation," and replace with the following:

- D. Attach brackets with a banding machine with stainless steel bands. Do not drill holes in poles except as shown on the plans. Follow Standard Drawings 745-55J and 745-55A2.

August 14, 2001

## **SUPPLEMENTAL SPECIFICATION**

### **SECTION 02912 M**

## **TOPSOIL**

Delete paragraph 1.4, Submittals.

Delete paragraph 2.1, and replace with the following:

#### **2.1 CONTRACTOR FURNISHED TOPSOIL**

- A. Determine PH, EC, and SAR with a saturated soil paste or 1:1 soil/water testing method. Meet the following:
  - 1. PH: 6.0 to 8.0
  - 2. EC (Electrical Conductivity): less than 4 ds/m.
  - 3. SAR (Sodium Adsorption Ratio): Less than 10.
- B. Organic Matter:
  - 1. 1 to 20 percent.
  - 2. Determined by the release upon combustion, Walkley-Black or modified Walkley-Black testing method. AASHTO T 194.
- C. Textural Classification:
  - 1. Loam, sandy loam, silt loam or sandy clay loam not exceeding the following percentiles. Refer to Textural Triangle National Soils Handbook, Part 603-5.

<b>Soil component</b>	<b>Percentile Range</b>
Sand	20 to 70
Silt	20 to 70
Clay	10 to 30

- 2. Determine particle size by the hydrometer testing method.
- D. Topsoil free of:

1. Subsoils (no B or C horizon soils)
2. Coarse sand and gravel
3. Stiff clay, hard clods, or hard pan soils
4. Rock larger than 75 mm in any dimension
5. Trash, litter, or refuse.
6. Noxious weeds and weed seeds.

E. Topsoil may contain a maximum of 5 percent rock smaller than 75 mm.

Delete lines A and B of paragraph 2.2, Source Quality Control - Contractor Furnished Topsoil, and replace with the following:

A. Soil Samples

1. Obtain soil samples while the Engineer is present. Provide no less than 0.25 kg per soil sample.
2. Obtain samples from a thin slice of soil cut from the side of a freshly dug hole or by using a soil auger or sampling tube.
3. Mix the several small samples taken from various places around the source together to produce a composite sample.
4. More than one composite sample may be required if the topsoil horizon changes significantly across the source.
5. Store samples in a clean container at room temperature and out of direct sunlight.
6. Label the location and date on each sample container.
7. Provide additional soil samples for verification if requested by the Engineer.

B. Soil testing: ENGINEER will submit soil samples to an approved independent soil testing laboratory capable of performing the tests listed in paragraph 2.1 of this section. A partial list of acceptable testing laboratories includes:

Brigham Young University  
Soil and Plant Analysis Laboratory  
255 WIDB  
Provo, UT 84602  
(801) 378-2760

USU Extension - Soil Lab  
University Hill  
Logan, Utah 84322-4820  
(435) 797-2233

Delete paragraphs:

- 3.1 General Requirements
- 3.2 Contractor Furnished Topsoil
- 3.3 Department Furnished Topsoil
- 3.4 Spread Stockpiled Topsoil

and replace with the following:

### **3.1 GENERAL REQUIREMENTS**

- A. Complete final grading, trench settling and surface preparation before placing topsoil.
- B. On steep cut slopes steeper than 1:2 and higher than five meters that require the placement of topsoil, place and spread topsoil as the slope is being constructed. Finish according to paragraph 3.4.C and D.
- C. On the remaining topsoiled areas not covered under this paragraph, line B, CONTRACTOR is responsible for providing a suitable topsoil surface just before seeding. Suitable topsoil surface is:
  - 1. Non-compacted surface that is finished according to this Section, paragraph 3.4, lines C and D.
  - 2. Weed free.
  - 3. Finish grade provides a uniform surface with smooth transitions between grade changes and disturbed areas.
- D. Do not strip or handle wet topsoil.
- E. Establish finish grade at 25 mm below the top of all walks, curbs, mow strips and other hard surfaces for areas receiving seed or turf seed and 40 mm for areas receiving turf sod.

### **3.2 STRIP AND STOCKPILE TOPSOIL**

- A. Strip the topsoil
  - 1. Only from areas identified on the plans or approved by ENGINEER.
  - 2. To a depth approved by the ENGINEER.
- B. Remove and dispose of any roots larger than 50 mm in diameter or 300 mm in length.
- C. Stockpile stripped topsoil:
  - 1. At locations acceptable to the ENGINEER.
  - 2. So that placement or activity around the stockpile does not damage or impact any existing trees, shrubs or environmentally sensitive areas. Obtain appropriate clearances if such impacts are unavoidable.

D. Grade to minimize erosion on and around the stockpiles.

### **3.3 SPREAD STOCKPILED AND CONTRACTOR FURNISHED TOPSOIL**

- A. Clear area to receive topsoil of all trash, debris, weeds, and rock 75 mm or larger, and dispose of objectionable material in an approved manner.
- B. Place and spread the stockpiled topsoil over the prepared slopes to the plan depths.
- C. On slopes 1:3 and flatter, disc or harrow the placed topsoil along the contour, or cat-track the slopes to create continuous cleat tracks that run parallel with the contours.
- D. On slopes steeper than 1:3, cat-track the slopes to create continuous cleat tracks that run parallel with the contours.



March 14, 2000

**SUPPLEMENTAL SPECIFICATION**

**SECTION 02922 M**

**SEED, TURF SEED, AND TURF SOD**

Delete line C of paragraph 2.1, Seed and Turf Seed, and replace with the following:

- C. Obtain seed from lots that have been tested by a state certified seed testing laboratory. (Association of Seed Analyst (AOSA) or Society of Commercial Seed Technologists (SCST).
  - 1. Seed germination test older than 18 months for grass seed, and 9 months for forb, shrub, or tree seed are not acceptable.
  - 2. Based on the amount or type of seed required on a project, UDOT may require additional testing by the Department of Agriculture.

Delete lines D and E of paragraph 3.3, Drill Method, and replace with the following:

- D. Using the drill manufacturer's directions, and in the presence of the ENGINEER, calibrate the drill to apply seed at the rate indicated in the seeding schedule.

**SUPPLEMENTAL SPECIFICATION**

**SECTION 02961**

**ROTOMILLING**

**Delete Section 02961 in its entirety and replace with the following:**

**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

- A. Mill the existing bituminous surface at the location and to the depth specified in the plans.

**1.2 RELATED SECTIONS**

- A. Section 01355: Environmental Protection.
- B. Section 02968: Optional Use of Reclaimed Asphalt Pavement.
- C. Section 02969: Optional Use of Reclaimed Asphalt Pavement (PG Grade Project Only)

**PART 2 PRODUCTS**

**2.1 MATERIALS**

- A. Use the milled material obtained from the rotomill process passing a 50 mm sieve as optional use of Reclaimed Asphalt Pavement (RAP) as per Section 02968 or Section 02969.

**2.2 EQUIPMENT**

- A. Use power-operated track propelled planing machine or grinder:
  - 1. Capable of milling to plan cross slope.
  - 2. Self-propelled with sufficient power, traction, and stability to maintain accurate depth of cut.
  - 3. Maximum of 15 mm between the cutting teeth on the mandrel.
- B. Use appropriate cleaning equipment capable of sweeping and picking up millings to clean up after milling operation.

## **PART 3      EXECUTION**

### **3.1      PREPARATION**

- A.     The Engineer will measure and record rotomilling depths, taking two (2) random measurements every 300 meters of each pass of the milling machine.
- B.     Rotomill existing bituminous pavement surface to the width and depth shown on the plans to an accuracy of  $\pm 6$  mm of plan depth, measured from original surface to the top of the ridge. The Engineer may adjust the depth of the milling operation to remove unacceptable material or to improve ride.
- C.     Clean rotomilled surface after milling operation and prior to opening to traffic. Meet environmental regulations as per Section 01355 for cleaning process.
- D.     Remove and replace, or repair damage by the Contractor's operation outside of the widths and depths shown in the plans. Repair at Contractor's expense. Damage to traffic due to loose material on milled surface repaired at Contractor's expense.
- E.     Maintain grade control using 15 meter ski, wire guide, or other approved grade control methods to control the profile grade of the rotomill.
- F.     Load the reclaimed material from milling operation into a truck in one operation. Remove and clean all millings from the surface daily. Control dust created by the cutting action.
- G.     Milled material is the property of the Contractor, unless specified otherwise by the Engineer.
- H.     Dispose of the milled material in a manner approved by the Engineer and in accordance to Section 01355.
- I.     Rotomill the area directly surrounding manholes, catch basins, water meters, water valves or any other permanent fixtures to the specified depth.

END OF SECTION

**SUPPLEMENTAL SPECIFICATION**

**SECTION 03211 M**

**REINFORCING STEEL AND WELDED WIRE**

Add the following to Line B.3 of Paragraph 1.4, "Quality Assurance:"

3. Reinforcing steel suppliers through UDOT's Quality Management Plan (QMP) for steel.

Delete Line A. from Paragraph 2.1, "Reinforcing Steel," and replace with the following:

- A. Deformed billet-steel bars as specified.
  1. Soft metric bar sizes. AASHTO M 31M, Grade 420.
  2. Hard metric bar sizes. AASHTO M 31M-94, Grade 400.

Delete Paragraph 2.5 and replace with the following:

**2.5 HARD METRIC BAR SIZES**

- A. May choose to use soft metric bar sizes in lieu of hard metric bar sizes with the following restrictions:
  1. When substituting soft metric bars for hard metric bars, adjust the spacing or the number of bars using the appropriate multiplier in Table 1.
    - a. Adjust development and splice lengths in either case.
    - b. Apply the appropriate multiplier to bars on each face of all concrete members.
    - c. Always round up when calculating the number of bars required.
  2. Submit changes for approval prior to fabrication of bars.

**Table 1**

Conversion of Hard Metric Bars to Soft Metric Bars				
Hard Metric Bar Size	Soft Metric Bar Size	Multipliers		
		No. of Bars	Bar Spacing	Development & Splice Length
10M	13	1.00	1.00	1.22
15M	16	1.00	1.00	1.00
20M	19	1.06	0.94	1.00
25M	25	1.00	1.00	1.02
30M	29	1.09	0.91	1.00
35M	36	1.00	1.00	1.01
45M	43	1.03	0.97	1.00
55M	57	1.00	1.00	1.03

Delete the headings from Line E and Line E.1 from Paragraph 3.3, “Splicing” and replace with the following:

- E. Do not lap splice bars greater than 40 mm in diameter.
  - 1. Use mechanical butt splices when using bars greater than 40 mm in diameter.

Delete Line F from Paragraph 3.3, “Splicing” and replace with the following:

- F. Use one of the following mechanical butt splices for bars less than 40 mm in diameter when designated on the plans. Follow the manufacturer’s published recommendations for equipment and splicing procedures.
  - 1. A full mechanical connection that develops in tension or compression at least 175 percent of the specified yield strength of the bar.
  - 2. As described in this Section, Paragraph 3.3 Splicing, Line E.

April 11, 2000

**SUPPLEMENTAL SPECIFICATION**

**SECTION 03310 M**

**STRUCTURAL CONCRETE**

Delete line C.5 from paragraph 3.10, Construction Joints, and replace with the following:

- C.
  - 5. Apply epoxy adhesive as specified to face of construction joints.

January 9, 2001

**SUPPLEMENTAL SPECIFICATION**

**SECTION 03390 M**

**CONCRETE CURING**

Delete Table 1 and replace with the following:

**Table 1**

<b>Characteristics (Curing Compound for PCC)</b>	<b>Min.</b>	<b>Max.</b>	<b>ASTM</b>
Total Solids, percent by weight compound	35		
TiO <sub>2</sub> Pigment, percent reflectance	60		E 1347
Drying Time: Set to touch, min Track Free, min		60 120	C 309
Coverage rate, L/m <sup>2</sup>	0.4		
Water Loss, kg/m <sup>2</sup> in 72 hours		0.30	C 156
Flash point, degrees C	38		
V.O.C. Content, g/L <sub>N.W.</sub>		350	D 3960

April 10, 2003

**SPECIAL PROVISION**

**PROJECT # SP-0006(29)229**

**SECTION 00250S**

**PREBID CONFERENCE**

**PART 1 GENERAL**

**1.1 SCHEDULING**

- A. A mandatory Pre-Bid Conference will be held at the following time and location:

Date: July 14, 2003 Time: 10:00 am

Location: UDOT Price District Office  
940 South Carbon Ave, Price Utah  
435-636-1470

Project ID SR-6; Price to Wellington

- B. Representatives of Construction and Design will be present to discuss details related to this project.
- C. Bids submitted by Contractors who did not attend the pre-bid conference will be non-responsive.

**PART 2 PRODUCTS Not Used**

**PART 3 EXECUTION Not Used**

END OF SECTION



**SPECIAL PROVISION**

**SP-0006(29)229**

**SECTION 00555 M**

**PROSECUTION AND PROGRESS**

Add the following to Section 00555, Paragraph 1.11 LIMITATION OF OPERATIONS:

- D. The wetland mitigation site will be completely constructed and accepted by the Engineer prior to beginning project work elsewhere on the project.
- E. Maintain a minimum of one 3.3 meter wide lane of traffic and a 0.6 meter wide shoulder in each direction along SR-6 at all times.
  - 1. Limit lane closures to 3.2 km during all operations.
  - 2. Concurrent lane closures will not be allowed.
  - 3. Refer to STD DWG No. 745-2 for HAZARD MITIGATION for vertical grade separations.
- F. Assure that any irrigation water in the irrigation and roadway ditch between Station 9+921 left and Station 11+250 left will be routed to the same irrigation users and same crossings as is currently. Since this ditch also collects tailwater, collect any tailwater that flows to this end of the fields during construction and convey it along the existing route. The culvert crossing SR-6 at Station 9+408 also conveys irrigation water. Maintain this flow as well.
- G. Place silt fence around the existing wetlands along the SR-6 corridor as shown on the plan sheets prior to beginning any construction. Protect the wetlands inside the silt fence by preventing encroachment into these sensitive areas. Revegetate the wetland areas between the toe of slope and the silt fence as shown in the plan sheets.
- H. Temporary construction easements have been purchased along the corridor (see

the right of way sheets). Restore all temporary construction easements to their condition prior to construction. Turf sod quantities shown in the plans assume that all turf sod within the temporary construction easement will be replaced because of damage. Fences within the temporary construction easements have been called out on the plan sheets for removal and replacement. Take necessary measures to protect any fences, trees, pipes, and other appurtenances within the temporary construction easement not called out on the plan sheets for removal and replacement. Coordinate additional removals necessary within the temporary construction easements that are not indicated on the plan sheet with the Engineer prior to removal.

- I. Maintain access to all driveways during the project. Keep the driveway for Parcel 32B, Chad L. McCance (12+848 Left) open during non-working hours and maintain access during working hours. Coordinate the schedule for the reconstruction of the portion of the Wellington City's Emergency Medical Services (EMS) driveway (14+900 Left) and the roadway directly in front of it with the Wellington City EMS.
- J. Install the advance construction signs as shown in the drawings prior to beginning construction. Place one sign in Spanish Fork at approximate milepost 173.4 to alert eastbound SR-6 traffic. Place the other sign near I-70 at approximate milepost 299.5 to alert westbound SR-6 traffic.
- K. Limit construction activities and placement of equipment for the wetland mitigation site to the wetland mitigation site shown in the plans. Enter into an agreement with other property owners if additional property is to be used.
- L. Maintain the existing school crossing signs and flashers at 200 West in Wellington until the new overhead flashing signs are in place and functioning. Maintain pedestrian traffic during construction in Wellington where existing sidewalks are located.
- M. Dewater excavations for the culvert extensions in Hayes Wash and in Cardinal Wash as necessary. Comply with Section 01355 - Environmental Protection for all dewatering practices.
- N. Limitations for construction of individual walls and culverts are as follows:
  - 1. **Wall R-395A**  
Prior to construction of this wall, the water line to the house will be relocated by Price River Water Improvement District. Maintain the south

- driveway access to SR-6 for the property owner during construction.
2. **Wall R-395B**  
Prior to construction of this wall, water and gas lines will be relocated by the respective utility companies. Protect the existing driveway and trees during construction of the wall.
  3. **V-2025 - Cardinal Wash**  
Prior to construction of the upstream (east) extension, water, sewer, and gas lines will be relocated by the respective utility companies. Existing wetlands have been identified on the upstream and downstream (west) end of the culvert. Limit the amount of disturbance within the Cardinal Wash.
  4. **EIE-1612 - Hayes Wash**  
Prior to construction of the upstream (north) extension, sewer lines and water lines will be relocated by Price River Water Improvement District. Mr. Dale Mathis owns cattle that use the box culvert as a method of crossing to fields on the other side of the railroad tracks. Contact Dale Mathis at 435-653-2825 to coordinate construction of the box culvert extension.
- O. Abide by all conditions outlined in the 404 Permit issued by the Army Corps of Engineers for the wetlands within the project limits. (See following pages) Immediately notify the Engineer of any conflicts between the permit and construction activities. Items 1 and 2 have already been completed by UDOT. Item 3 will be addressed during construction.
- P. Covering this project is a General Construction Storm Water Permit issued by the State of Utah, Department of Natural Resources, and Division of Water Rights. Abide by the conditions of the Storm Water Pollution Plan for this project as specified by the Division of Water Quality and Utah Department of Transportation (see sheet no. 1E). Prepare and sign a Notice of Intent (NOI) and submit to the Engineer for approval prior to construction (available on UDOT's Web Site). Prepare a Notice of Termination (NOT) and submit to the Engineer at the end of construction for review and approval.
- Q. Along the corridor are several pockets of existing wetlands. In addition to placing silt fence as shown in the plans, do not stockpile material in the areas between the toe of slope and the silt fence.
- R. Provide Myron Lee, Region Four Public Involvement Coordinator, with two

weeks notice of beginning and ending construction.  
Phone: (435) 893-4702  
FAX: (435) 896-6458

- S. Obtain permission from the Engineer for any work between sunset and sunrise.
- T. Perform no work on holidays including the following days:  
May 23, 24, 25, & 26 (Memorial Day)  
July 3, 4, 5, & 6 (4th of July)  
July 24  
August 29, 30, 31, and September 1 (Labor Day)
- U. Visit and analyze the project site prior to submitting bids.
- V. Notify the Engineer and UDOT's Landscaper two weeks prior to beginning construction of the wetland mitigation site. UDOT's landscaper is Jared Barton and can be reached at 435-893-4741. UDOT's landscaper or his representative will be present during excavation and planting operations at the wetland mitigation site.
- W. Prior to beginning earthwork operations at the wetland mitigation site and after placing environmental fencing, dig a test pit within the proposed wetland mitigation site in a location indicated by the UDOT landscaper that extends down into the water table. Do not disturb the pit for 24 hours. After 24 hours identify the elevation of the water table. This is the water table elevation that will be used as shown on the wetland mitigation construction detail plan sheets.
- X. Do not remove the mature evergreen trees within the temporary construction easement located on parcel 15:E (Approximately Station 9+300 LT to Station 9+320 LT)
- Y. Protect the Union Pacific Communications line that runs parallel to the tracks during construction and ensure that no disruption to the line occurs as a result of construction activities near the line.
- Z. Entry onto the Railroad right-of-way is not allowed unless all permits with UDOT and the UPRR are completed and approved. Work near the railroad tracks will comply with railroad requirements for shoring.
- AA. Document by way of video the project site prior to beginning construction.

edge of pavement on the north side of the highway within the project limits.

BB. Right-of-way for the project has been cleared except for the following parcels:

Parcel 1 Southern Pacific Railroad

Parcel 22B:T Mathis

No work is allowed within these two parcels until the right of way has been cleared. It is anticipated that these parcels will be cleared by August 11, 2003

## GENERAL NOTES:

All dimensions are measured perpendicular to  $\epsilon$  of Track.  
Prior to commencing any work, the contractor shall submit for approval by the Railroad detailed plans indicating the nature and extent of the track protection shoring proposed. The contractor shall install the temporary shoring system per the approved plans. Design of the temporary shoring system to comply with **GUIDELINES FOR DESIGN AND CONSTRUCTION OF TEMPORARY SHORING.**

For excavations which encroach into Zone A or B, shoring plans shall be accompanied by design calculations. Plans and calculations must be signed and stamped by a Registered Professional Engineer.

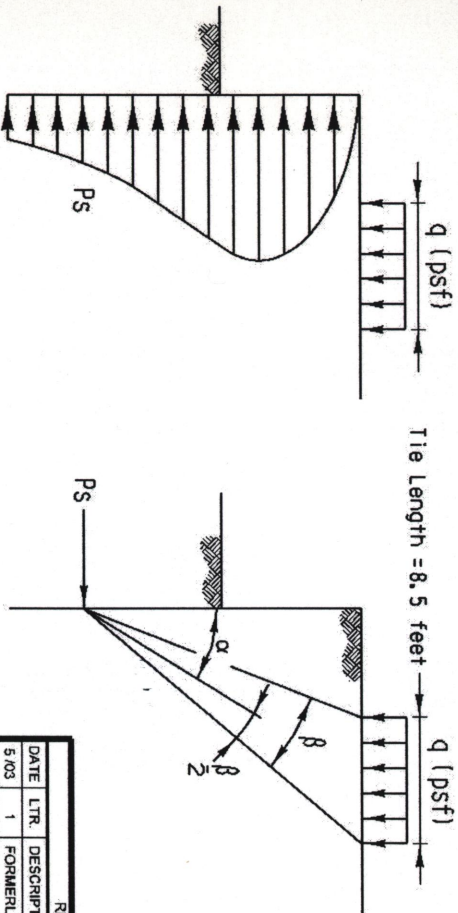
Additional analysis for centrifugal force calculations are required for shoring adjacent to curved track. The Railroad may impose more stringent requirements as conditions warrant.

The pressure at a given point of a continuous strip of surcharge load  $q$  (psf) parallel to shoring shall be computed by:

$$P_s = \frac{2q}{\pi} [\beta - \sin\beta \cos(2\alpha)]$$

Where angles  $\alpha$  and  $\beta$  are expressed in radians

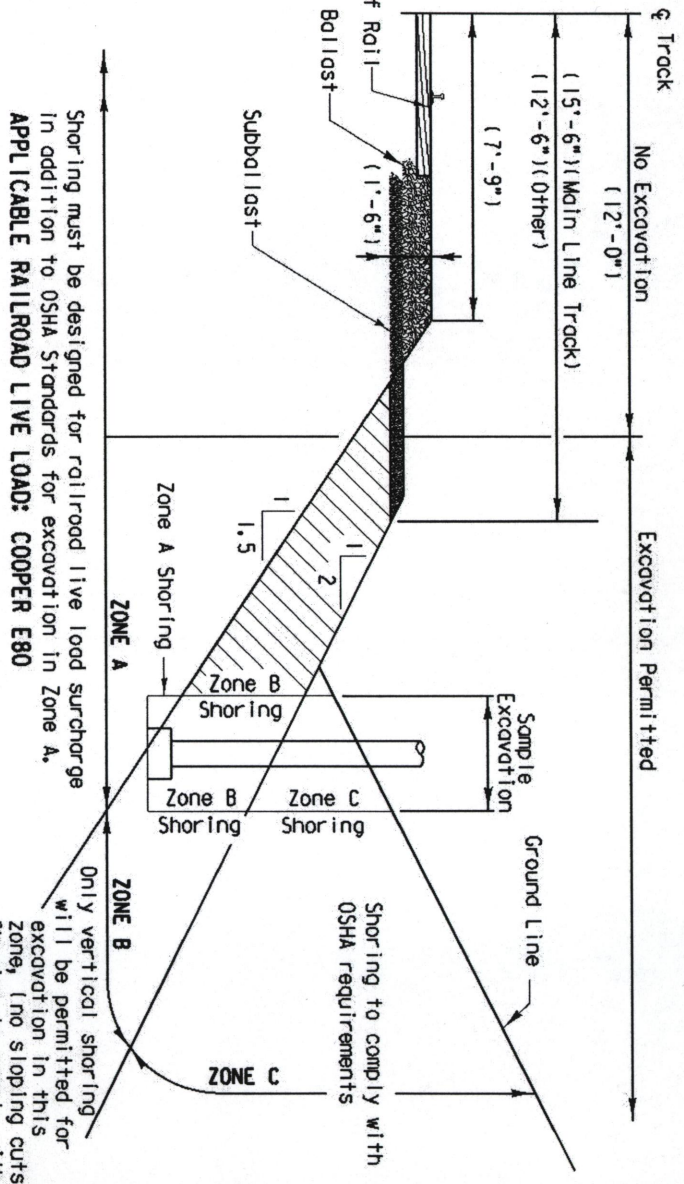
$$q = \frac{80,000 \text{ lb}}{(5 \text{ feet})(8.5 \text{ feet})} = 1,882 \text{ psf}$$



## PRESSURE DISTRIBUTION FOR STRIP LOAD

SCALE:

(NOT TO SCALE)



Shoring must be designed for railroad live load surcharge in addition to OSHA Standards for excavation in Zone A.  
**APPLICABLE RAILROAD LIVE LOAD: COOPER E80**

## GENERAL EXCAVATION ZONES

SCALE:

(NOT TO SCALE)

DATE	LTR.	DESCRIPTION
5/03	1	FORMERLY UPRR C.E. 106913

DESIGN BY:	DRAWN BY:	CHECKED BY:
PGP	JFS	AA



## GENERAL SHORING REQUIREMENTS

BNSF - ASSISTANT DIRECTOR STRUCTURES DESIGN  
UPRR - MGR SPECIAL PROJECTS STRUCTURES DESIGN

FILE OWNER: UPRR	DATE: 5-6-03
PLAN NO.: 710000	SHEET: 1 OF 1

Figure 1



DEPARTMENT OF THE ARMY  
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO  
CORPS OF ENGINEERS  
1325 J STREET  
SACRAMENTO, CALIFORNIA 95814-2922

REPLY TO  
ATTENTION OF

April 1, 2002

Regulatory Branch (200150034)

Mr. Mike Miles  
Utah Department of Transportation  
Region 4  
135 South 350 West  
Richfield, Utah 84701

Dear Mr. Miles:

I am responding to your request for a Department of the Army permit for the State Route 6 Expansion project. The boundaries of construction span from Price To Wellington along State Route 6. This project is located in Carbon County, Utah in the following locations:

Sections 27, 34, and 35, Township 14 South, Range 10 East  
Sections 1 and 2, Township 15 South, Range 10 East  
Section 6, Township 15 South, Range 11 East

Based on the information you have provided, the proposed discharge of dredged or fill material into 0.30 acres of palustrine emergent and scrub/shrub wetlands is authorized by Nationwide Permit Number 14. However, the work must meet the terms and conditions listed on the enclosed nationwide permit information sheets and the following special conditions:

1. Mr. Darren Rasmussen of the State of Utah, Department of Natural Resources, Division of Water Rights has requested that a revegetation plan for construction sites surrounding streams and creeks, ditches, and wetlands be submitted to him for approval prior to construction. Mr. Rasmussen has also requested design specifications for all culvert extensions that will be installed for this project. A second copy of these plans must also be submitted to the Corps prior to project construction.

2. General Condition 13 (b)(6) for Nationwide Permit 14 requires the permit applicant to provide a statement describing how temporary losses of waters of the U.S. will be minimized to the maximum extent practicable. According to your project drawings, significant temporary losses of waters of the U.S. will be incurred during construction. A narrative of measures you intend to take to restore these temporary wetland losses must be submitted to this office prior to wetland impacts.

3. This office has received and approved the SR 6 Mitigation Plan dated December 27, 2001 and its addendum dated January 24, 2002. Both documents were written by Mr. Andy Herb of URS Corporation. The following conditions shall apply to the Mitigation Area:

a. Construction of the Mitigation Site shall occur prior to



the implementation of the permitted wetland impacts. A Corps representative must be contacted for a site visit once mitigation construction is complete. This on-site visit shall be attended by a URS representative familiar with the design of the mitigation site. As-built construction surveys shall be supplied to the Corps representative prior to this site visit. Any modifications from the original design needed to ensure mitigation success shall be noted in indelible red ink.

b. It is the understanding of this office that Federal Highways will require concurrence from the Corps that the Mitigation Site has been constructed as designed before it will reimburse UDOT for project costs. This letter will not be processed through our office until the Mitigation Site has been constructed, and as-built drawings have been submitted to the Corps and verified during an on-site visit.

c. An independent third party shall be responsible for mitigation monitoring as outlined in the Mitigation Plan. The name and qualifications of this person shall be submitted to the Corps prior to wetland impacts.

d. To minimize the risk of failure for the Mitigation Site, groundwater monitoring wells must be installed at the site to demonstrate adequate wetland hydrology. Wells must be installed in all three planting zones as identified in the Mitigation Plan. Sufficient hydrology to support emergent wetland, scrub/shrub wetland, and riparian communities must be demonstrated monthly between April 1 and July 31 for the first 3 years of monitoring. This data shall be included in your year-end monitoring report. If your site does not support adequate wetland hydrology, UDOT must propose remedial measures.

e. Fencing surrounding the Mitigation Site shall be DWR approved wildlife friendly fencing.

e. Deed restrictions for the Mitigation Area shall be recorded with Carbon County, and submitted to the Corps, prior to the completion of construction of the site. Please refer to the attached list of deed restrictions required for this Mitigation Area.

f. Credit for additional wetland mitigation at this 0.8 acre mitigation site shall not be given to UDOT until the site has demonstrated success as defined in the Mitigation Plan. Additionally, to minimize the risk of failure, monthly groundwater monitoring well data must show that adequate hydrology is present on the site for 3 consecutive years as defined in paragraph "d" of this letter.

Upon completion of the work authorized by this permit, the permittee must sign and return the enclosed compliance

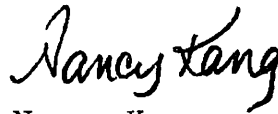


3

**certification as required by General Condition 14.** This verification is valid for a period of two years from the date of this letter.

We have issued identification number 200150034 to this action. Please refer to this number in any further correspondence concerning this project. If you have any questions, please contact Ms. Amy Defreese at our Utah Regulatory Office, 533 West 2600 South, Suite 150, Bountiful, Utah 84010, email Amy.Defreese@usace.army.mil, or telephone 801-295-8380, extension 13.

Sincerely,

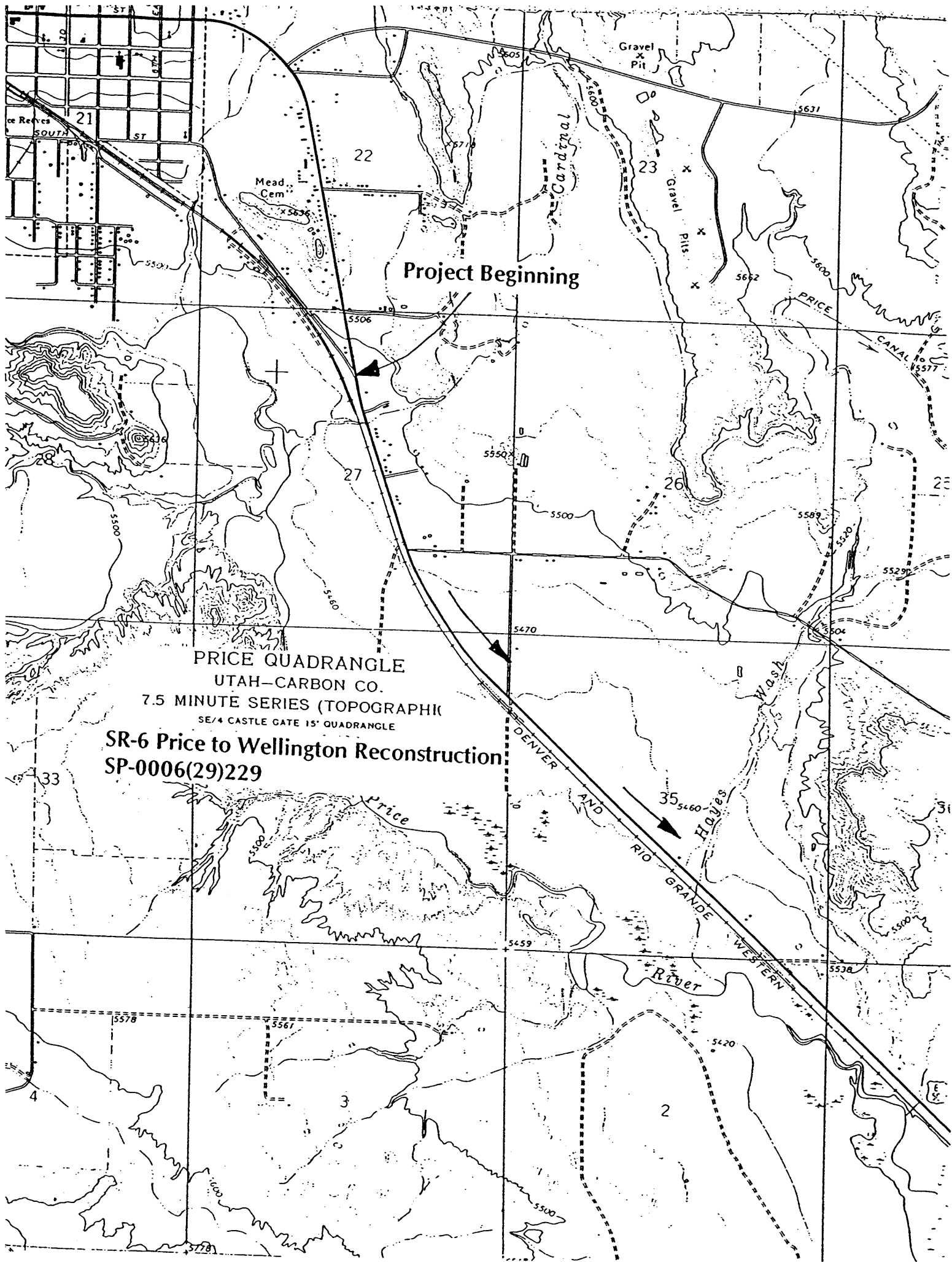


Nancy Kang  
Chief, Utah Regulatory Office

Enclosures

Copies Furnished:

URS Corporation, Mr. Andy Herb, 4582 South Ulster, Suite 1000,  
Denver, Colorado 80237  
Pat Rothacher, URS Corporation, 756 East Winchester Street, Suite  
400, Salt Lake City, Utah 84107  
Darren Rasmussen, State of Utah, Division of Water Rights, P.O.  
Box 146300, Salt Lake City, Utah 84114-6300

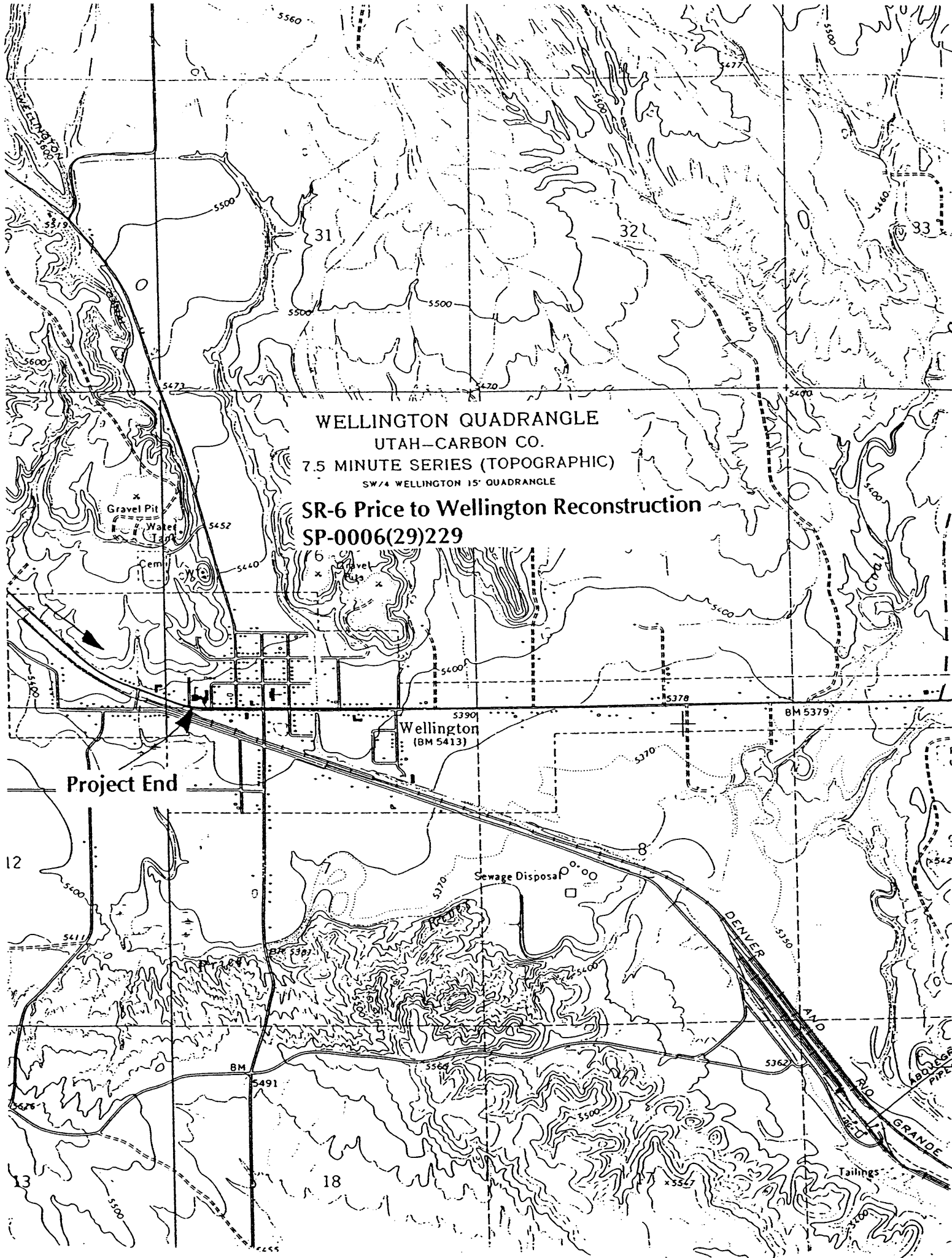


Project Beginning

PRICE QUADRANGLE  
UTAH-CARBON CO.  
7.5 MINUTE SERIES (TOPOGRAPHIC)  
SE/4 CASTLE GATE 15' QUADRANGLE  
SR-6 Price to Wellington Reconstruction  
SP-0006(29)229

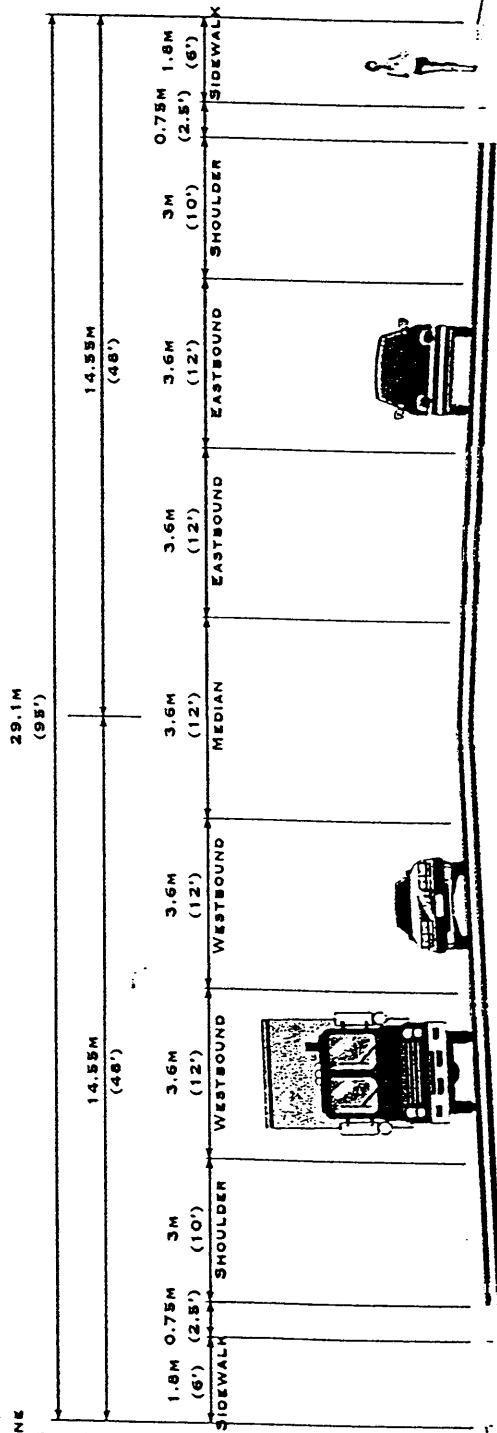
WELLINGTON QUADRANGLE  
UTAH-CARBON CO.  
7.5 MINUTE SERIES (TOPOGRAPHIC)  
SW/4 WELLINGTON 15' QUADRANGLE

SR-6 Price to Wellington Reconstruction  
SP-0006(29)229



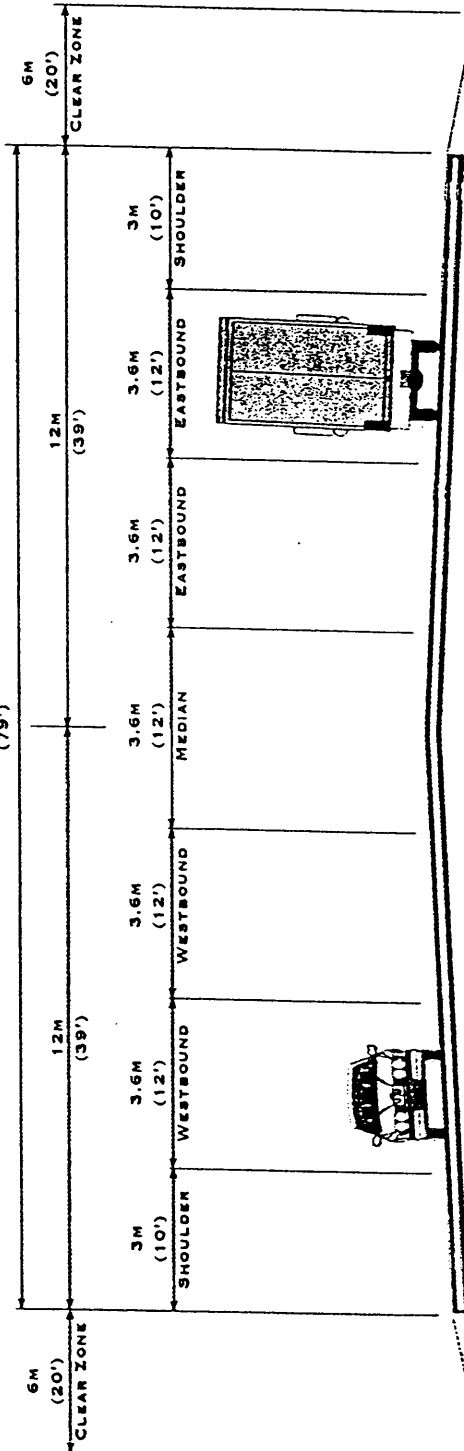
# TYPICAL ROADWAY CROSS SECTIONS

RIGHT-OF-WAY  
LINE



24M (79')

RIGHT-OF-WAY  
LINE



MIDDLE SEGMENT

SR-6 PRICE TO WELLINGTON  
ROADWAY WIDENING



Job SR-6 Price to Wellington Project No. H500001531 Sheet      of       
 Description acreage of waters of US Computed by J. Huffman Date 3-12-01  
including wetlands affected by project Checked by      Date     

measurements made in Microstation  
 using grading 01.dgn cut/fill lines - added 3m for  
 and shapes in Wetlands.dgn level 3 Construction  
 estimate

Cardinal Wash → see la & lb

Wetland 1a →  $76.0505 \text{ m}^2 \rightarrow 0.019 \text{ ac}$

Wetland 1b →  $32.1275 \text{ m}^2 \rightarrow 0.008 \text{ ac}$  (entire wetland)

Wetland 2 →  $15.8922 \text{ m}^2 = 0.004 \text{ ac}$

~~related~~ ~~Wetland 3a →  $239.5957 \text{ m}^2 = 0.059 \text{ ac}$  (entire wetland)~~

~~Wetland 3b →  $15.9840 \text{ m}^2 = 0.004 \text{ ac}$~~

Wetland 4 →  $25.2558 \text{ m}^2 = 0.006 \text{ ac}$

Wetland 5a →  $6.1117 \text{ m}^2 + 374.0738 \text{ m}^2 + 131.4384 \text{ m}^2 = 511.6292 \text{ m}^2$   
 $0.126 \text{ ac}$

Wetland 5b →  $36.9146 \text{ m}^2 = 0.009 \text{ ac}$

Wetland 5c →  $235.5743 \text{ m}^2 = 0.058 \text{ ac}$

Hayes Wash → see 6a & 6b

Wetland 6a →  $52.5407 \text{ m}^2 = 0.013 \text{ ac}$

Wetland 6b →  $95.1562 \text{ m}^2 = 0.024 \text{ ac}$

Wetland 7a →  $136.6415 \text{ m}^2 = 0.034 \text{ ac}$

Wetland 7b →  $3.9572 \text{ m}^2 = 0.001 \text{ ac}$  (entire wetland)

~~related~~ ~~Wetland 8a →  $760.3528 \text{ m}^2 = 0.188 \text{ ac}$~~

~~Wetland 8b →  $32.4423 \text{ m}^2 = 0.008 \text{ ac}$~~

~~Wetland 8c →  $0.7340 \text{ m}^2 = 0.0002 \text{ ac}$~~

Total →  ~~$2270.8432 \text{ m}^2 = 0.56 \text{ acres}$~~


$1221.7397 \text{ m}^2$


0.122 HA


$0.30 \text{ acres}$

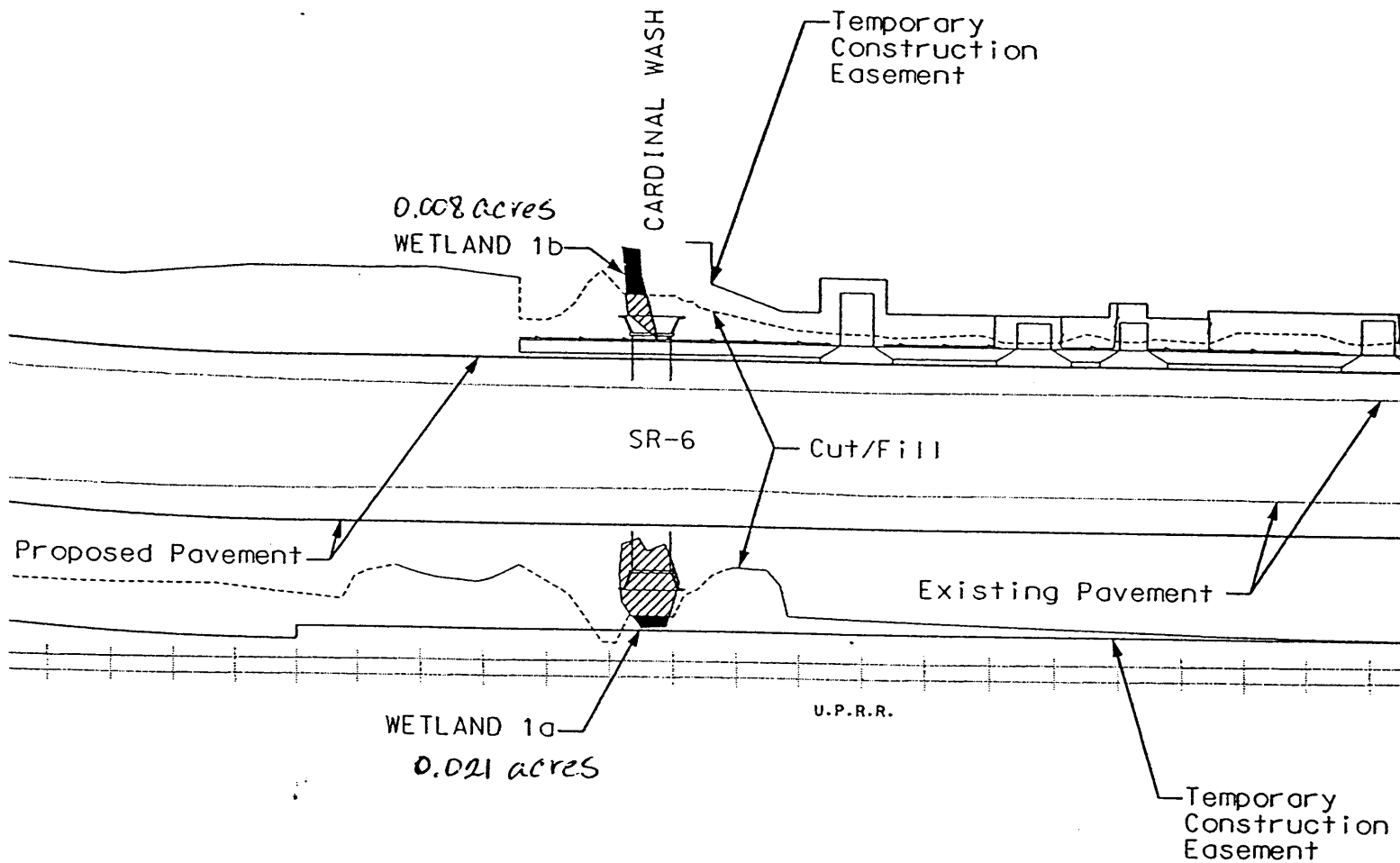
0.30 X

Legend

 Wetlands

 Impacted Wetlands

 Temporarily Impacted Wetlands






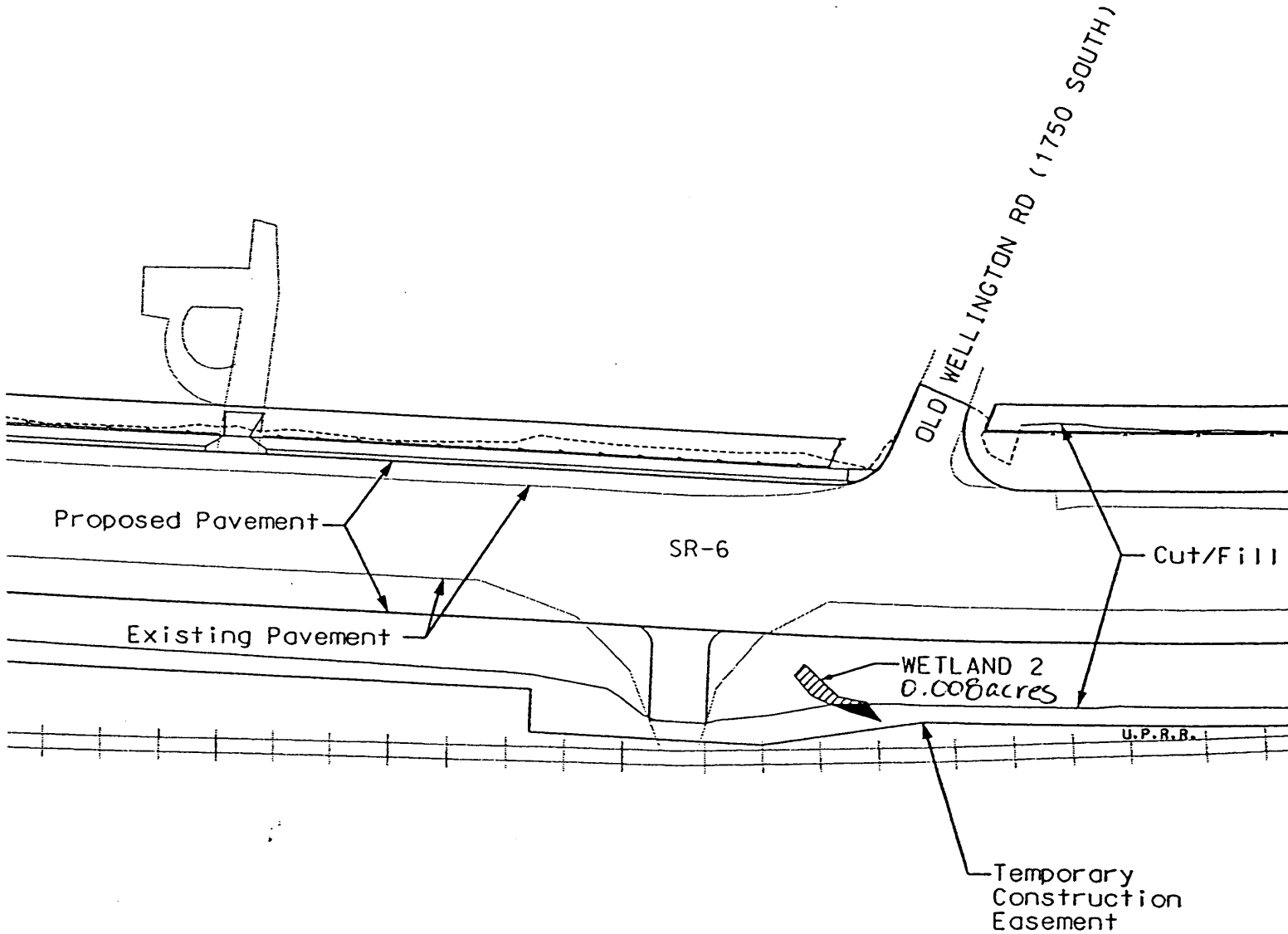
Detail of Impacted Wetland Areas  
(See Plan Sheet 2)

SR-6 Price to Wellington  
Roadway Widening Project

**URS**

Legend

-  Wetlands
-  Impacted Wetlands
-  Temporarily Impacted Wetlands






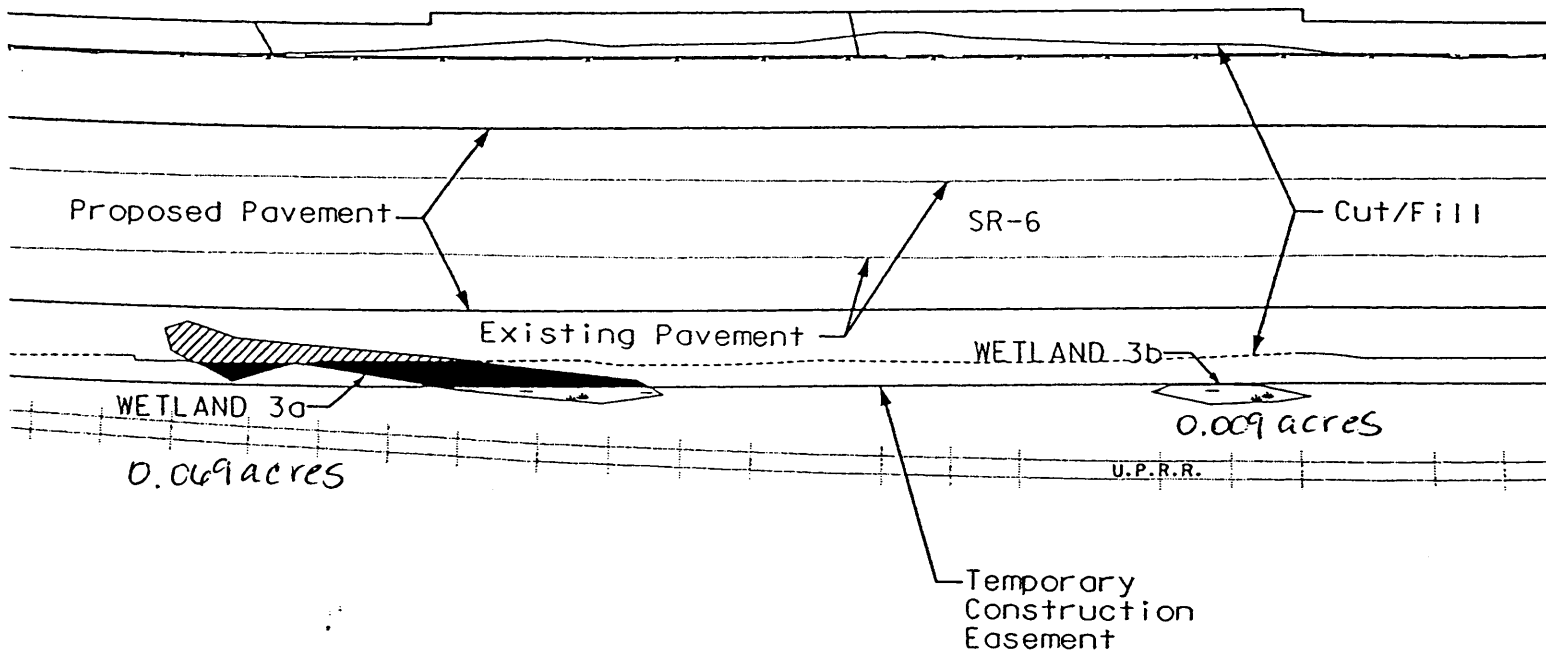
Detail of Impacted Wetland Areas  
(See Plan Sheet 4)

SR-6 Price to Wellington  
Roadway Widening Project

**URS**

Legend

-  Wetlands
-  Impacted Wetlands
-  Temporarily Impacted Wetlands

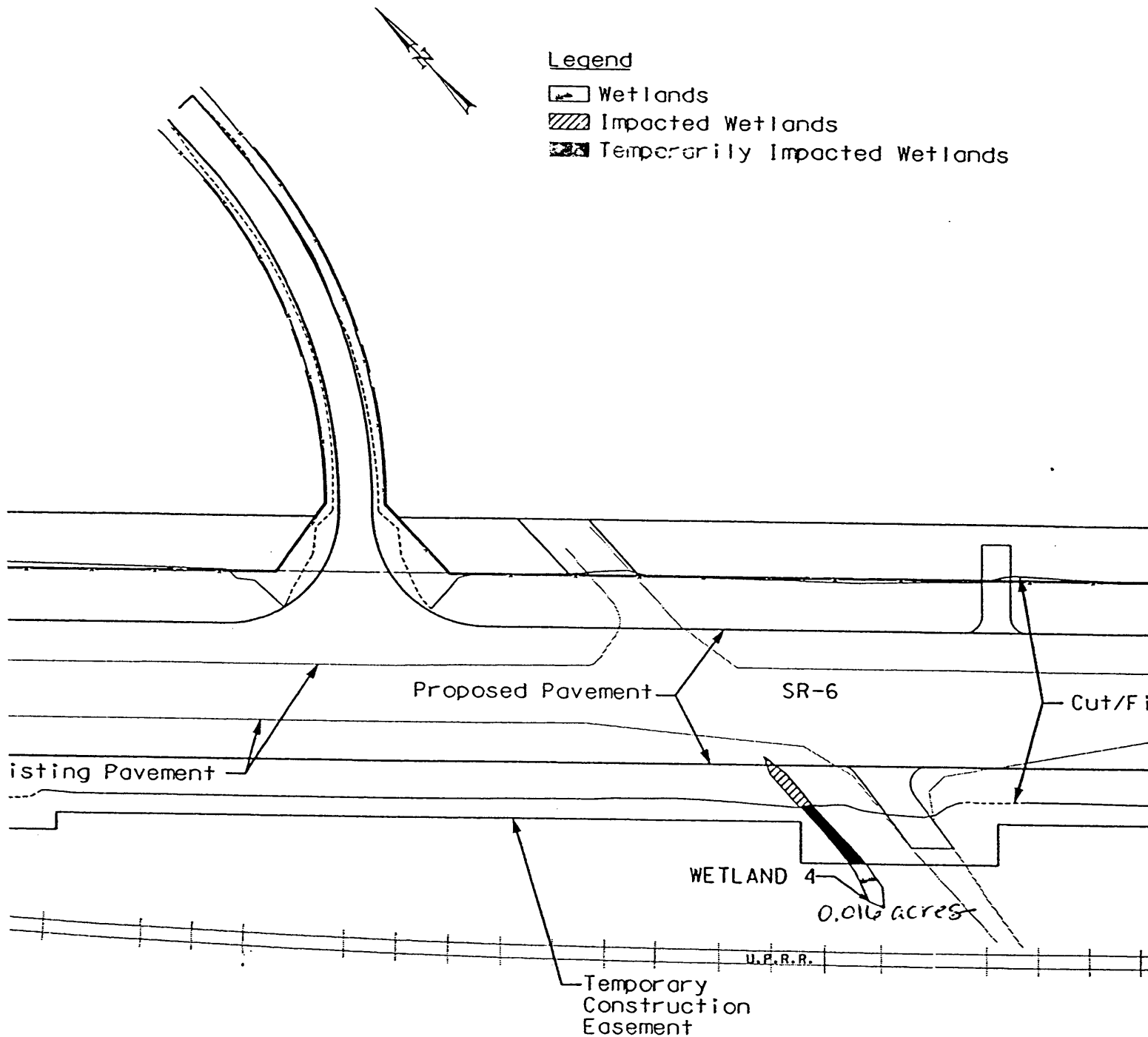


Detail of Impacted Wetland Areas  
(See Plan Sheet 5)

SR-6 Price to Wellington  
Roadway Widening Project

**URS**





Detail of Impacted Wetland Areas  
(See Plan Sheet 7)

SR-6 Price to Wellington  
Roadway Widening Project

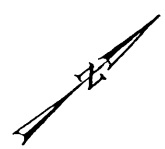
**URS**

WETLAND 5a  
1.636 acres




U.P.R.R.

SR-6

Proposed  
Pavement



Legend

-  Wetlands
-  Impacted Wetlands
-  Temporarily Impacted Wetland

Cut/Fill

WETLAND 5b  
0.014 acres

Temporary  
Construction  
Easement

Temporary  
Construction  
Easement

Existing  
Pavement

Detail of Impacted Wetland Areas  
(See Plan Sheet 8 & 9)

SR-6 Price to Wellington  
Roadway Widening Project




WETLAND 5a  
1.436 acres

U.P.R.R.


SR-6

Proposed  
Pavement

Legend

 Wetlands

 Impacted Wetlands

 Temporarily Impacted Wetlands

Cut/Fill

Existing  
Pavement

Temporary  
Construction  
Easement

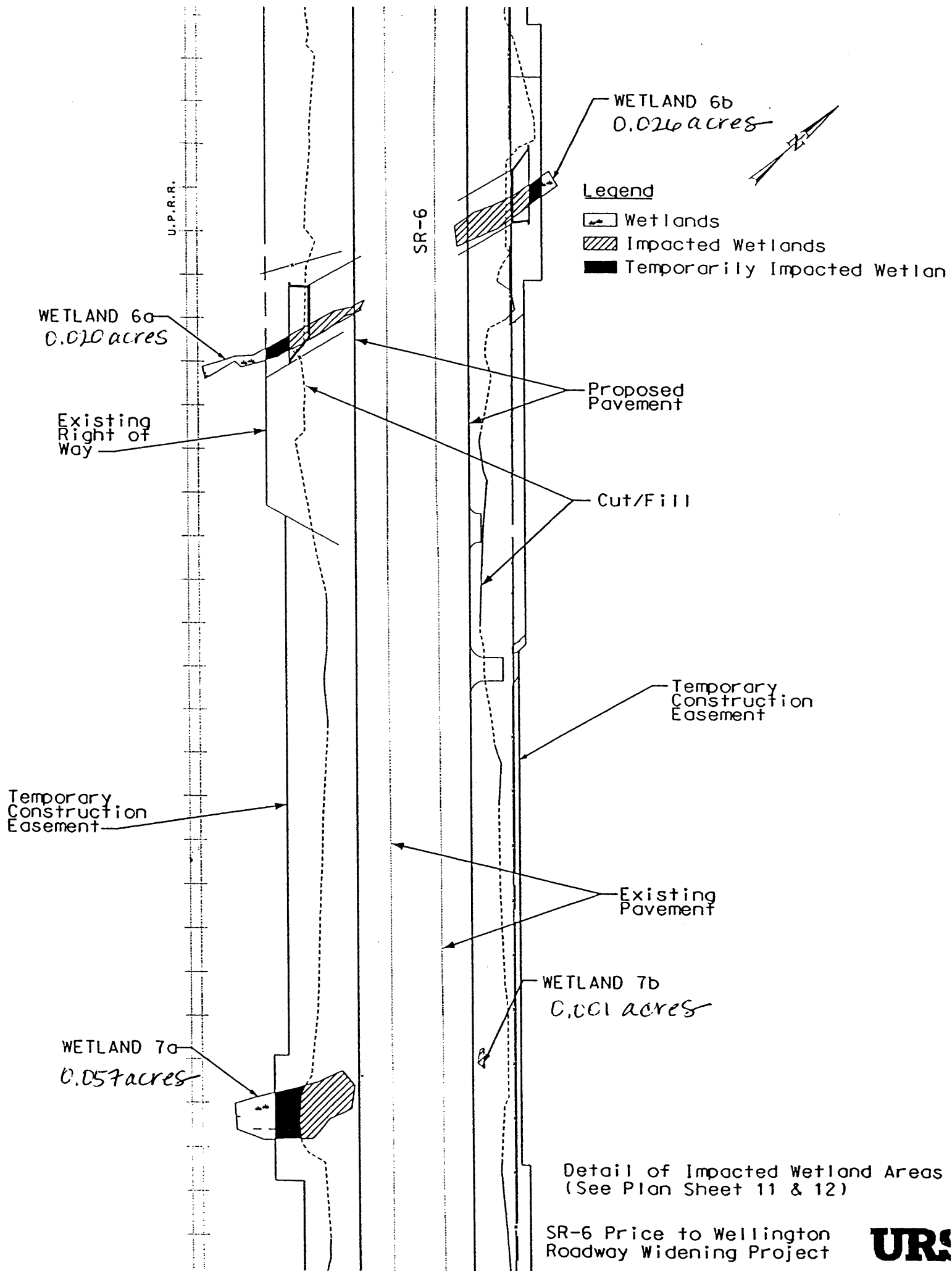
Temporary  
Construction  
Easement

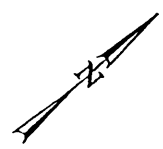
WETLAND 5c  
0.068 acres

Detail of Impacted Wetland Areas  
(See Plan Sheet 9 & 10)




SR-6 Price to Wellington  
Roadway Widening Project

**URS**





**Legend**

-  Wetlands
-  Impacted Wetlands
-  Temporarily Impacted Wetlands

Cut/Fill

WETLAND 8a  
0.411 acres

WETLAND 8c  
0.002 acres

SR-6

Proposed  
Pavement

Temporary  
Construction  
Easement

Temporary  
Construction  
Easement

WETLAND 8b  
0.039 acres

Existing  
Pavement

Detail of Impacted Wetland Areas  
(See Plan Sheet 14)

SR-6 Price to Wellington  
Roadway Widening Project





State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF WATER RIGHTS

Michael O. Leavitt  
Governor

Kathleen Clarke  
Executive Director

Robert L. Morgan  
State Engineer

1594 West North Temple, Suite 220  
PO Box 146300  
Salt Lake City, Utah 84114-6300  
801-538-7240  
801-538-7467 (Fax)

200150034

RECEIVED  
NOV 15 2001  
AD

November 14, 2001

Amy Defreese  
Corps of Engineers  
533 West 2600 South, Ste. 150  
Bountiful, UT 84010-7744

Re: Stream Channel Alteration Application No. 01-91-23SA for road widening on Hayes  
and Cardinal Washes in Carbon County.

Due to concerns of wetland impacts, we are deferring the above-mentioned application to you for processing. We are, however, concerned with revegetation and details of culvert extensions and erosion controls during and after construction, especially before revegetation is established. This office would appreciate the opportunity to review the project prior to the final compliance inspection.

If you have any questions or comments, please call me at 801-538-7377.

Sincerely,

Daren Rasmussen  
Stream Alteration Specialist

DR/jm

Enclosures

cc: Mark Page - Regional Engineer  
Mike Miles - UDOT  
Bill Bradwisch - DWR

**DECLARATION OF ESTABLISHMENT OF CONDITIONS, COVENANTS, AND  
RESTRICTIONS**

**KNOWN ALL MEN BY THESE PRESENTS**, that whereas under Section 1344 of Title 33 of the United States Code, the Sacramento District Engineer, U.S. Army Corps of Engineers, has authorized certain improvements on this certain piece of real property at Assessors Parcel No. \_\_\_\_\_, more particularly described in attached Exhibit A, in the County of \_\_\_\_\_, State of Utah, a portion of that Parcel No. \_\_\_\_ described in that certain deed recorded as Instrument No. \_\_\_\_\_ of Book \_\_\_\_\_ on Page \_\_\_\_ of the official records of \_\_\_\_\_ County. I, the owner of said real property, in consideration of such authorization, certify and declare that the following covenants, conditions, and restrictions are placed on the described portion of said property for the protection of the owner and the public at large:

1. No discharge of dredged or fill material or excavation of wetlands/uplands on this parcel is allowed, including the construction of buildings, trails, or other structures.
2. No grazing of animals is allowed.
3. No mowing or alteration of vegetation in the wetlands/uplands is allowed unless necessary for safety reasons or to control noxious weeds, provided that prior authorization is obtained from the Corps;
4. No grass clippings or other refuse shall be placed in wetlands/uplands on this parcel.
5. These covenants are to run with the land and shall be binding on all successors and assigns of the owner;
6. All Conditions in that authorization document known as the Department of the Army Permit, No. \_\_\_\_\_ in the official records of the U.S. Army Corps of Engineers, Sacramento District, will be observed.

IN WITNESS WHEREOF, the undersigned has caused this instrument to be executed on this \_\_\_\_ day of \_\_\_\_\_ 2002.

OWNER OF RECORD \_\_\_\_\_  
(Signature)

THE *JANE DOE* LIVING TRUST

by \_\_\_\_\_, Trustee

October 13, 2001

**SPECIAL PROVISION**

**SP-0006(29)229**

**SECTION 00725 M**

**SCOPE OF WORK**

Add the following to Section 00725 Section **1.8 - MAINTAINING TRAFFIC - GENERAL**  
Subsection A:

4. Assess lane rental price adjustments as per Section 1554, Part 1 General, 1.11  
Lane Rental



October 13, 2001

**SPECIAL PROVISION**

**SP-0006(29)229**

**SECTION 00727 M**

**CONTROL OF WORK**

Add the following to Section 00727, Paragraph 1.7 COOPERATION WITH UTILITIES:

- H. Listed below and on the first sheet of the utility sheets are the utility contacts for this project. Invite utility company representatives to the Preconstruction Conference to coordinate schedules. Notify utility companies prior to any construction activities.

<b>Utility Company</b>	<b>Contact Person</b>	<b>Interest</b>	<b>Telephone No.</b>
Price River Water Improvement District	Jeff Richens	Sewer / Water	(435) 637-6350
Wellington City	Ed Ericson	Sewer / Water	(435) 637-5213
Questar	Kyle Secretan	Natural Gas	(801) 324-3389
Utah Power	Norman Smith	Electric	(435) 636-6609
MCI	Darryl Wood	Fiber Optic	(801) 595-8124
Carbon Emery Telcom	Dave Emery	Telephone	(435) 748-2223
Peak Cable Services	Paul Harvey	Cable	(800) 924-7662
Union Pacific Railroad	Jim Marshall	Railroad	(801) 595-3560

- I. Utilities identified in the plans are shown in their approximate location and alignment as identified during design. The DEPARTMENT has not investigated to determine the

depth or location of the utilities unless specifically noted on the plans. Ascertain the exact depth and location either by direct contact of utility owner, lessee or operator or by investigating areas where excavation may be required and where construction operations may be affected by the presence of utility lines and facilities as depicted in plans. Several of the utilities within the project limits of the SR-6 Corridor will be relocating their lines prior to construction of this project including Questar, Utah Power, Price River Water Improvement District's water line, and Wellington City's water line. Coordinate work schedule with the utility companies or their contractors if any utility relocation work is still ongoing at the time that construction begins..

- J. Protect and prevent damage to any utility facilities. The utility company will repair any utilities damaged by the Contractor's operations at the Contractor's expense.
- K. Price River Water Improvement District will relocate water lines, valves, and meters outside of the new pavement from the beginning of the project to the Duncan Water Box (approximately station 13+795 Lt.). Price River Water Improvement District will also relocate the sewer siphons at Cardinal Wash (station 8+740 Lt.) and Hayes Wash (station 11+670 Lt.) outside or beneath the culvert extensions.
- L. Wellington City will relocate their water line outside of the new pavement along with water valves and meters.
- M. Utah Power will relocate power lines through the length of the corridor outside of the new roadway clear zone.
- N. Questar will relocate natural gas lines throughout the project outside of the new pavement.
- O. Carbon Emery Telcom will relocate telephone lines between Old Wellington Road and 200 West on Wellington.
- P. Union Pacific will relocate sections of their overhead communications line within the project limits to avoid conflict with this construction project.
- Q. Communicate with Union Pacific Railroad regarding any work that will be occurring within their right of way.

October 9, 2002

**SPECIAL PROVISION**  
**Project Number NH-0006(29)229**

**SECTION 01554 M**

**TRAFFIC CONTROL**

**Add the following article to PART 1 GENERAL:**

**1.11 Lane Rental**

- A. Lane Rental is not a pay item. It is an Incentive/Disincentive bid item used by UDOT to encourage timely completion of the project. The Contractor will be charged an hourly rental charge for each lane closure required to construct the project. The Bidders will be required to estimate the amount of hours and the lane rental amount for the project. If the work is completed before the Lane Rental bid money is expended, the Contractor will be paid the remaining money, up to 4% of the total final construction amount (INCENTIVE). If the lane rental charges are in excess of the bid amount, they will be deducted from the Contractor's pay (DISINCENTIVE).
- B. Definitions:
  - 1. Rental Hour - Any continuous 60 minute period or portion of the 60 minute period beginning when a lane is closed by the Contractor's operation. It includes traffic control setup and take down operations.
  - 2. Lane Closure - Denying any portion of a lane to traffic and the lane is not recreated to provide for traffic. A lane is considered closed when the number of available lanes are reduced from the number available before the construction.
  - 3. Rental Rates - As per Table 1.

Week Days Monday - Thursday		Weekends Friday - Sunday		Holidays and Days Identified in 00555 M
12:00 AM - 07:59 AM	Off Peak \$50.00	12:00 AM - 05:59 AM	Off Peak \$50.00	No work that encroaches on traffic allowed.
08:00 AM - 07:59 PM	Peak \$100.00	06:00 AM - 11:59 PM	Peak \$500.00	
08:00 PM - 11:59 PM	Off Peak \$50.00			

Table 1

September 12, 2002

**SPECIAL PROVISION**

**SP-0006(29)229**

**SECTION 01571 M**

**TEMPORARY ENVIRONMENTAL CONTROLS**

Add the following subsection to Section 3.2 INSTALLATION:

- D. Follow Section 01571 and the UDOT Standard Drawings included in the contract documents to control surface environmental conditions at the construction site as necessary or as specified by the ENGINEER.

December 19, 2001

**SPECIAL PROVISION**

**SP-0006(29)229**

**SECTION 01721 S**

**SURVEY**

**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

- A. Schedule, coordinate and provide all construction surveying, staking, and calculations essential to complete the project and properly control the entire work.
- B. Directed surveying as requested by the ENGINEER.

**1.2 RELATED SECTIONS**

- A. Section 02896: Boundary Survey
- B. Section 01282: Payment

**1.3 MEASUREMENT PROCEDURES**

- A. Directed Survey: If extra survey work is needed, 2-Person Crew will be measured by the hour authorized. DEPARTMENT will make no additional payment for travel time to and from the project.
- B. Directed Survey: If extra survey work is needed 3-Person Crew will be measured by the hour authorized. DEPARTMENT will make no additional payment for travel time to and from the project.

**1.4 PAYMENT PROCEDURES**

- A. If needed and approved, directed survey and/or engineering work will be paid for in the accepted quantities at the following rates:

2 person survey crew      \$130.00 per hour

Survey  
01721S - 1 of 11

---

3 person survey crew	\$155.00 per hour
1 person Computation and CAD	\$65.00 per hour

- B. The number of hours required for computations and drafting cannot exceed 33% of actual survey hours and will be established on a percent basis prior to directed survey work starting.

## **1.5 SUBMITTALS**

- A. The Department requires that a Professional Engineer or Professional Land surveyor registered in the State of Utah sign and seal all submittals.
- B. Resubmittals may be required depending on completeness and correctness of the work.
- C. Prior to beginning work, submit a statement indicating that the contractor has field checked all DEPARTMENT-provided horizontal and vertical control and has determined the control to be accurate within the tolerances specified in paragraph 3.4 "Control Point and Survey Tolerances". Attach field survey information used to verify control. If discrepancies are found, notify the ENGINEER verbally and in writing.
- D. Prior to beginning work, provide a written description of the equipment, manpower, methods and data storage format the Contractor proposes to use to complete all survey activities.
- E. Record-keeping: Keep all field notes, diaries and books according to standard surveying practice.
  - 1. Loose leaf books will not be accepted.
  - 2. Make available at any time all survey records including field notebooks and forms used for the work to the ENGINEER upon verbal or written request.
  - 3. During construction, keep all documentation at a location approved by the ENGINEER.
- F. After project completion, return to the ENGINEER all surveying and design data and "as staked/constructed" drawings in Microstation format clearly showing all final dimensions, lines, grades, tie-ins and deviations from contract plans.
- G. Provide a red lined hard copy plan set showing as-constructed features denoting changes from the original design.

## **1.6 QUALITY ASSURANCE**

- A. CONTRACTOR is responsible for survey and control of the work, and for correcting CONTRACTOR errors, whether the errors are discovered during the actual survey work or in subsequent phases of the project. CONTRACTOR bears any cost overruns resulting from CONTRACTOR errors.
- B. Perform all work in accordance with the plans and specifications and standard Engineering and Surveying practices under the responsible charge of a Professional Engineer or Professional Land Surveyor duly and properly registered in Utah
- C. The Engineer may spot check the work for accuracy and may reject unacceptable portions of work. Resurvey rejected work and correct work that is not within the specified tolerances at no additional expense to the DEPARTMENT.

## **PART 2 PRODUCTS**

### **2.1 EQUIPMENT**

- A. Furnish tools, supplies and stakes suitable for use in highway survey work.
- B. Furnish stakes and hubs of sufficient length to provide a solid set in the ground with sufficient surface area above ground for necessary legible markings.
- C. Furnish survey instruments and supporting equipment capable of achieving the specified tolerances. Calibrate survey equipment for accuracy prior to beginning survey work and as required.

## **PART 3 EXECUTION**

### **3.1 PREPARATION**

- A. Before survey work begins, discuss and coordinate the following with the ENGINEER:
  - 1. Required submittals
  - 2. Survey and staking methods
  - 3. Stake markings
  - 4. Grade control
  - 5. Referencing
  - 6. Structure control
  - 7. Any other procedures and control necessary for the work
  - 8. Documentation procedures



- B. Establish construction survey points, elevations and grades as necessary to control layout and complete the work. Verify all control surveying and staking meets specified tolerances prior to beginning work.
- C. Calculate all grades, elevations, offsets and alignment data necessary for staking and/or setting items of work. Obtain approval from the ENGINEER for alternate methods of establishing grade control with wire lines, computer or laser controlled grading or other suitable methods.
- D. Provide appropriate traffic control for all survey activities.
- E. The DEPARTMENT will furnish:
  - 1. Plans showing locations of control points
  - 2. Plans showing locations of Bench Marks
  - 3. Cross sections developed during design, if any
  - 4. Electronic project data, if any
  - 5. Digital Terrain Model used for design, if any

### **CONTRACT PROVISION DISCLAIMER**

**RELEASE OF UDOT DATA:** Contractor may obtain an electronic copy of the Data Points prepared by UDOT. This data will not include the commercial software needed to read the points, however. In order to obtain an electronic copy, Contractor needs to make a written request to the Project Manager. Contractor agrees and understands that the Data Points are prepared by UDOT for its own purposes and not for the benefit of private individuals or businesses. Consequently, Contractor waives any and all claims that may result from the use of or reliance upon the Data Points. Contractor will indemnify UDOT and hold it harmless for any damages, costs, attorneys' fees, or other liabilities that might be incurred as a result of its use and reliance on the data.

## **3.2 DIRECTED SURVEY**

- A. Conduct directed surveying if requested by the ENGINEER.
  - 1. Includes work needed for changes and extra work. Provide all labor, materials and equipment including global positioning satellite equipment.
  - 2. Obtain prior written authorization from the Engineer documenting the affected work and requirements before performing work under these items.

### 3.3 COMPUTATIONS AND PLOTS

- A. When work is modified by a change order use cross-sections to calculate volume measurements.
  - 1. Superimpose final cross sections with original cross sections and calculate final quantities using the average end area method.
  - 2. Develop cross-sections from field measurements.
    - a. Take cross section measurements both before and after excavation and prior to backfill.
    - b. When the centerline curve radius is less than or equal to 150 m, take cross sections at a maximum centerline spacing of 10 m.
    - c. When the centerline curve radius is greater than 150 m, take cross sections at a maximum spacing of 20 m.
    - d. Take additional cross sections at breaks in terrain and at changes in typical sections.
    - e. For each cross section, measure and record points at breaks in terrain, but at least every 10 m unless otherwise approved by the ENGINEER.
    - f. Measure and record points to at least the anticipated slopes and reference locations.
    - g. Reduce all cross section distances to horizontal distances from centerline.
    - h. Take cross sections at right angles to tangents and normal to curves.
    - i. Include in cross sections all grades, locations, and existing ground line profiles.
  - 3. CONTRACTOR may develop cross sections from digital terrain models provided that:
    - a. The ground survey locations do not exceed 30 m in any direction
    - b. Major breaks in terrain are also included
    - c. The horizontal and vertical control for the project is used
    - d. The DTM is verified accurate to require tolerances by spot checking throughout the length of the project.
- B. ENGINEER may approve alternate methods for calculating quantities.

### 3.4 STAKE MAINTENANCE AND MARKING

- A. Maintain ALL staking necessary for the work until the construction has been completed and accepted by the ENGINEER.

1. Legibly mark all survey stakes with station and offset referenced to their respective control line.
  2. Mark slope, reference and guard stakes with station.
  3. Renew illegible stakes at no additional cost to the DEPARTMENT.
- B. Provide and maintain reference stakes that identify stationing at least every 50 meters until all work has been completed and accepted by the ENGINEER.

### **3.5 CONTROL POINT AND SURVEY TOLERANCES**

- A. Relocate initial horizontal and vertical control points in conflict with construction to areas that will not be disturbed by construction operations. Furnish the coordinates, elevations and survey notes for the relocated points before the initial points are disturbed.
- B. Protect bench marks from construction activities. Position all bench marks to allow a level rod to stand vertically and squarely on the mark. Reference bench marks to centerline and horizontal measurements.

C. Survey and establish control within the following tolerances:

Description	Horizontal	Vertical
Control points	+/- 3 mm	+/-3 mm
Centerline points	+/- 10 mm	+/- 10 mm
Cross sections and slope stakes	+/- 30 mm	+/- 30 mm
Slope stake references	+/- 30mm	+/- 30 mm
Culvert and ditches	+/- 30 mm	+/- 10 mm
Minor drainage structures	+/- 30 mm	- 10 mm
Curb and gutter	+/- 5 mm	+/- 3 mm
Guardrail and concrete barrier	+/- 15 mm	+/- 5 mm
Retaining walls	+/- 20 mm	+/- 3 mm
Bridge substructure and overall	+/- 3 mm	+/- 3mm
Bridge superstructure and overall	+/-3 mm	+/- 3 mm
Environmental Control Limits	+/- 300 mm	-----
Clearing and grubbing limits	+/- 500 mm	-----
Right of Way Limits	+/- 5 mm	-----
Roadway subgrade finish stakes	+/- 30 mm	+/- 30 mm
Roadway finish grade stakes	+/- 10 mm	+/- 10 mm
Signals and electrical	+/- 25 mm	+/- 6mm
Striping	+/- 25 mm	-----
Asphalt paver reference line	+/- 10 mm	+/- 3 mm

Coordinate the survey tolerances of any items not listed above with the Engineer.

- D. Staking limits:
1. Stake clearing limits on both sides of centerline at each established station. Locate the clearing limit on the ground as shown by the cut and fill limits on the plans.
  2. Stake right of way limits every 20 m maximum on tangents, every 10 m maximum on curves and at all right of way breaks. If staking distance effects line of sight, reduce the distance.
  3. Stake environmental control limits both sides of centerline at each established station. Locate the environmental control limits on the ground as shown by the slope rounding contours and environmental and silt fence locations as shown on the Plans. Stake environmental control limits every 20 m and every 10 m where environmental or silt fence is required.
- E. Furnish reference stakes for all slope stakes and stakes used for setting items for work.
1. Maintain the reference stakes for the duration of the project until the ENGINEER approves removal.
  2. Establish and set slope stakes and references on both sides of centerline at the following intervals.
    - a. When the centerline curve radius is less than or equal to 150 m, place slope stakes at a maximum centerline spacing of 10 m.
    - b. When the centerline curve radius is greater than 150 m, place slope stakes at a maximum spacing of 20 m.
  3. Establish slope stakes in the field as the actual point of intersection of the design slope with the natural ground line.
  4. Set slope stake references outside the clearing limits.
  5. Include all reference point and slope stake information on the reference stakes.
- F. After the slope staking is completed, record on the cross section guard stakes the vertical distance from the reference point (RP) to the construction grade, at a minimum horizontal distance of 3 m outside the clearing limits or at right of way.
- G. Setting grade finishing stake.
1. For grade elevations and horizontal alignment:
    - a. On centerline
    - b. On each shoulder at roadway cross section locations and between centerline and shoulder with a maximum spacing of 4.5 m.
    - c. At the top of subgrade and the top of each aggregate course.

2. Locations:
  - a. Where turnouts are constructed, set stakes on centerline, on each normal shoulder, and on the shoulder of the turnout.
  - b. In parking areas, set hubs at the center and along the edges of the parking area.
  - c. Set stakes in all ditches to be paved.
3. The maximum spacing between stakes along the alignment is 20 m.
4. Use guard stakes, etc. at each grade finishing stake.
5. Reset grade finishing stakes as many times as necessary to construct the subgrade and each aggregate course.

### **3.6 CONCRETE PAVING**

- A. Develop a method of horizontal and vertical control for the placement of concrete pavement.
  1. Utilize laser, wire or string line, etc. to control horizontal and vertical control.
  2. Maximum spacing of 20 m.
  3. Set control on both sides of roadway.
- B. Profile surface at each edge of placement and adjust grades for smoothness as approved by the ENGINEER
- C. Measure pavement thickness every 10 m and adjust as needed.
- D. Stake concrete joint and station stamp locations.

### **3.7 DRAINAGE STRUCTURES**

- A. Stake drainage structures to fit field conditions and in coordination with the ENGINEER. The location of the structures may differ from the plans.
  1. Survey and record the ground profile along centerline of structure
  2. Determine the slope catch points at inlets and outlets.
  3. Set reference points and record information necessary to determine structure length and end treatments.
  4. Stake ditches or grade to make the structure functional.
  5. Plot the profile along centerline of the structure to show the natural ground, the flow line, the roadway section, and the structure.
  6. Mark guard stakes with the following, when applicable:
    - a. Diameter, length and type of culvert (i.e. 450 mm x 11 m corrugated metal pipe (cmp))

- b. The vertical and horizontal distance from the hub to the invert at the end of the culvert or any intermediate point as needed or directed
  - c. Flow line grade of the pipe
  - d. Station
- 7. For storm sewers and waterlines provide a reference at a maximum spacing of 15 m. Reference inverts of pipe at all manholes.

### **3.8 BRIDGES**

- A. Set a minimum of 3 horizontal and vertical control reference points to be used for surveying all bridge substructure and superstructure components, including but not limited to; pile locations and cutoffs, line and grade for abutments and bents, beam seats, anchor bolts and screed grades.
- B. Set intermediate slope stakes at bridge abutments to establish transitions. Place finish grade stakes on the centerline of abutment bearing and at the top of slope of all bridge berms. Place finish grade stakes on each side at top, mid-point or slope and toe of fill.

### **3.9 BOX CULVERTS**

- A. Set horizontal and vertical control and reference points. Establish and reference the centerline, back of parapet, skew and flow line elevations at inlet, outlet and breaks.

### **3.10 CURB AND GUTTER**

- A. Set curb and gutter staking at 10 m intervals on tangent and 5 m intervals on curve radii.

### **3.11 GUARDRAIL**

- A. Stake guardrail vertical and horizontal control at a maximum spacing of 10 m on tangent sections and 5 m on curved sections unless otherwise approved.

### **3.12 EXISTING SURVEY MONUMENTS**

- A. Under the direction of a surveyor licensed in the State of Utah, locate and reference all private and public land survey monuments that may be destroyed by project construction activities prior to disturbing said monuments.
- B. Complete referencing and reestablishing said monuments at no cost to the DEPARTMENT and before project completion.
- C. In some counties the county surveyor references and reestablishes the monuments.
  - 1. Notify the county surveyor at least 30 days prior to the destruction of any monument.
  - 2. Coordinate the reestablishment of section corner and quarter corner monuments with the county surveyor.
  - 3. Submit drawings and notes showing references to section corners and quarter corners to the ENGINEER.
- D. If a monument is found during construction but is not shown on the contract plans and must be reset, the DEPARTMENT will pay for the additional work under the Directed Survey item.

### **3.13 RETAINING WALLS**

- A. Set horizontal and vertical control and reference points. Establish and reference the centerline offsets for the Walls, Radius points and the beginning and ending wall locations as shown on the plans
- B. Set grade stakes as required for each lift of select material used on the MSE walls.
- C. Stake retaining wall vertical and horizontal control at a maximum spacing of 10 m on tangent sections and 5 m on curved sections unless otherwise approved..

### **3.14 CLEAN UP**

- A. Remove and dispose of all flagging, lath, stakes and other staking material after the project is complete.

END OF SECTION



**SPECIAL PROVISION**

**SP-0006(29)229**

**SECTION 02221 M**

**REMOVE STRUCTURE AND OBSTRUCTION**

Add the following paragraphs to **PART 3 EXECUTION**:

**3.18 REMOVE MAILBOX**

A. Remove existing mailbox and foundation (if any) and all other appurtenances to a minimum of 0.6m below subgrade. See plans for locations of removals.

B. Maintain service of any removed mailbox until replaced with new mailbox. Coordinate with Postmaster (Johnny Martinez) (435-637-1638).

**3.19 REMOVE RIGHT-OF-WAY MARKERS**

A. Remove existing right-of-way marker, pipe, foundation and all other appurtenances to a minimum of 0.6m below subgrade. See plans for locations.

**3.20 REMOVE WALL**

A. Completely remove existing wall and foundation (if any) and all other appurtenances. See plans for locations.

**3.21 REMOVE BOX CULVERT (BOTH ENDS)**

A. Due to the proximity of the box culvert ends to the SR-6 pavement, preserve the integrity of the roadway while box culvert removal operations are under way and until the new box culvert section is in place

B. Excavate all material necessary to permit removing box culvert and headwall and to permit construction of new box culvert section.

C. Saw cut existing box culvert as indicated in DWG NO. E1E-1612. Make saw cut face clean and perpendicular to wall of existing box culvert.

D. Remove portion of box culvert as indicated in DWG NO. E1E-1612.

E. Repair any damage to box culvert as a result of the removal operation at no extra cost to OWNER.

### **3.22 REMOVE PIPE CULVERT (CARDINAL WASH)**

A. Due to the proximity of the culvert ends to the SR-6 pavement, preserve the integrity of the roadway while pipe removal operations are underway and until the new pipe culvert section is in place.

B. Excavate all material necessary to permit removing pipe and headwall and to permit placement of connector bands for new culvert section.

C. Cut the existing pipe culvert as indicated in DWG. V-2025. Make cut line neat and even.

D. Remove portion of pipe culvert as indicated in DWG. NO. V-2025.

E. Repair any damage to remaining pipe culvert as a result of the removal operation at no extra cost to the OWNER.

November 16, 2001

**SPECIAL PROVISION**

**SP-0006(29)229**

**SECTION 02231 M**

**SITE CLEARING AND GRUBBING**

Add the following to **Subsection 3.1 PREPARATION**:

- E. The Engineer or the Engineer's representative will identify trees and bushes to be removed within the wetland mitigation site and must be present during clearing activities within the wetland mitigation site.

Add the following to **Subsection 3.2 VEGETATION REMOVAL**:

- D. Remove all stumps, roots, and non-perishable solid objects from the wetland mitigation sitesite.

Add the following to **Subsection 3.3 BACKFILLING**:

- B. Seed all backfilled areas greater than 1 square meter within the wetland mitigation site with the riparian seed mix per **Section 02922 Seed, Turf Seed, and Turf Sod**.

December 19, 2001

**SPECIAL PROVISION**

**SP-0006(29)229**

**Section 02316M**

**ROADWAY EXCAVATION**

Add the following to paragraph 1.2 RELATED SECTIONS:

G. Section 00725: Scope of Work

H. Section 01721S: Survey

Add the following to paragraph 1.6 ACCEPTANCE:

- B. Payment is plan quantity by the cubic meter. No adjustment will be made to plan quantities unless staked quantities differ from plan quantities by more than 5 percent +/-.
- C. Notify the Engineer in writing before beginning excavation in any area or balances of excavation if the Contractor determines that the staked quantities differ from the plan quantities by more than 5 percent +/- . The following procedures then apply:
  - 1. Provide calculations and plots in accordance with Section 01721S, paragraph 3.3 Computations and Plots.
  - 2. Evaluation of the “plan quantities” to “staked quantities” will be by individual cuts or balances as determined by the Engineer to provide the necessary accuracy.
  - 3. Do not begin excavation of any cut sections that the Contractor determines to differ from plan quantities by more than 5 percent +/- until the calculations and plots have been submitted, reviewed, and approved quantities are determined with the Engineer. No payments, partial or final will be made until submissions are provided and approved.
- D. When the ENGINEER determines the staked quantities differ from plan quantities by more than 5 percent +/-, the approved quantities will become the plan quantities (adjusted).

- E. When the Engineer directs changes in the alignment, grade, or scope of work that result in a change in the roadway excavation quantities, the revised quantities become the plan quantities (adjusted).
- F. Payment will be made at the original unit bid price for the plan quantities (adjusted).
- G. If plan quantities are adjusted from the original contract bid plan quantities, Section 00725 paragraph 1.5 Significant Changes in the Character of Work, will apply.

November 16, 2001

**Special Provision**

**SP-0006(29)229**

**SECTION 02610 M**

**PIPE CULVERTS**

Add the following to Paragraph **1.2 RELATED SECTIONS**:

- F. Section 02056: Common Fill

Add the following to Paragraph **2.4 PIPE SELECTION**:

- J. Polyethylene or polyvinyl chloride (PVC) pipe will not be allowed to be used in locations where the end of the culvert will be exposed due to the frequency that ditches or fields are burned in this area.
- K. Verify that pipe culverts selected for use are appropriate for minimum cover requirements where applicable. Next to pipe callouts on the drainage plans are notes indicating locations where minimum cover requirements are less than 600 mm. Based on UDOT Standard Drawings, high density polyethylene pipe culvert and some types of aluminum pipe may not meet certain minimum cover requirements for this project. See UDOT Standard Drawing no.s 605-1, 605-2, 605-3, 605-5, 605-8 for additional information.

Add the following paragraph to **PART 3 EXECUTION**:

**3.11 PLUG PIPE**

- A. Fill existing pipe completely with sand or flowable fill and then plug the end of the pipe with a 0.6 meter long water-tight concrete plug.

December 17, 2001

**SPECIAL PROVISION**

**SP-0006(29)229**

**SECTION 02742 S**

**PROJECT SPECIFIC SURFACING REQUIREMENTS**

**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

- A. Required PG asphalt or emulsion.
- B. Number of gyrations to use for Superpave Mix Design.

**PART 2 PRODUCTS**

**2.1 HOT MIX ASPHALT (HMA)**

- A. PG 64-34 Asphalt
- B.  $N_{\text{initial}}$  8     $N_{\text{design}}$  100     $N_{\text{final}}$  160

**2.2 OPEN-GRADED SURFACE COURSE**

- A. Not used.

**2.3 CHIP SEAL**

- A. Type of asphalt emulsion: CRS-2P.

**PART 3 EXECUTION**

Not used.

November 16, 2001

**SPECIAL PROVISION**

**SP-0006(29)229**

**SECTION 02771 M**

**CURBS, GUTTERS, DRIVEWAYS, DISABLED PEDESTRIAN  
RAMPS, AND PLOWABLE END SECTIONS**

Add the following to Paragraph **3.1 of PART 3 EXECUTION**:

- I. Concrete Waterway: Refer to plan set details.
- J. Waterway Transition: Refer to plan set details.

Add the following Paragraph to **PART 3 EXECUTION**:

**3.6 CONCRETE WATERWAY**

- A. Construct the waterway as shown on the plan sheets.

**3.7 WATERWAY TRANSITION**

- A. Construct transition as shown on the plan sheets.



October 9, 2001

**SPECIAL PROVISION**

**SP-0006(29)229**

**SECTION 02822 M**

**RIGHT-OF-WAY FENCE AND GATE**

Add the following to **PART 2 PRODUCTS**:

**2.10 SLIDING CHAIN LINK GATE**

A. Supply materials necessary for construction of a sliding chain link gate. The sliding chain link gate will slide parallel to the fence using a wheel that slides along a horizontal rail attached to the fence. At the bottom of the gate will be rubber tired wheels to facilitate the opening and closing of the gate. All posts and fencing fabric will meet the requirements of Subsection 2.6 TUBULAR STEEL FRAME GATE WITH WIRE FABRIC. Supply manufacturer's information showing gate layout to ENGINEER for approval prior to ordering.

Add the following to Subsection **3.2 INSTALLATION**:

N. Install sliding chain link gate per manufacturer's recommendations.

Add the following paragraph to **PART 3 EXECUTION**:

**3.3 TEMPORARY FENCE**

- A. Use Right-of-Way Fence Type A (Metal Post) (see Std Dwg 720-1B) unless otherwise approved by adjacent property owner and the ENGINEER.
- B. Place temporary fence as shown in plans prior to removal of existing fence. In locations where both the property owner and the Engineer agree that temporary fence is not needed, the temporary fence will not be placed.
- C. Place gates in fence at approximately the same locations as existing gates.
- D. Maintain temporary fence until installation of proposed fence in the same area is completed.

- E. Remove temporary fence after permanent fence has been installed. Temporary fence along with associated gates become property of the Contractor upon removal.

September 12, 2001

**Special Provision**

**SP-0006(29)229**

**SECTION 02891 M**

**TRAFFIC SIGNS**

Add the following to **PART 3 EXECUTION**:

**3.5 RELOCATE OVERHEAD SIGN STRUCTURE**

- A. Remove existing sign from overhead structure and store in secure location. Do not damage sign or sign face. Store mounting hardware for overhead sign in a secure location.
- B. Remove overhead sign pole from existing foundation and store in secure location.
- C. Remove foundation to a minimum of 600 mm below the proposed subgrade elevation and backfill.
- D. Construct new foundation as shown on plans. Provide new anchor bolts and other equipment as required.
- E. Place original sign pole structure on new foundation. Replace original sign on sign pole in original location using original mounting hardware.

November 16, 2001

**SPECIAL PROVISION**

**SP-0006(29)229**

**SECTION 02911 M**

**MULCH**

Add the following to **Subsection 2.1 CELLULOSE FIBER MULCHES**:

- C. Do not use cellulose fiber mulches within the wetland mitigation site.

Add the following to **line C, Straw Anchoring, of Subsection 3.2 APPLYING MULCH**:

- 3. Inject a tacking agent into the straw as it leaves the machine or apply it evenly using a hydromulcher after straw is placed within the wetland mitigation site.

November 16, 2001

**SPECIAL PROVISION**

**SP-0006(29)229**

**SECTION 02912 M**

**TOPSOIL**

Add the following to **Subsection 3.4 SPREAD STOCKPILED TOPSOIL**:

- E. Within the wetland mitigation site, place and spread the topsoil over the prepared slopes to a minimum depth of 200 millimeters.
- F. Only disc or harrow prepared areas outside of the newly created wetlands following topsoil placement within the limits of the wetland mitigation site.

**SPECIAL PROVISION**

**SP-0006(29)229**

**SECTION 02922 M**

**SEED, TURF SEED, AND TURF SOD**

Add the following to **line F of Subsection 1.4 SUBMITTALS**:

16. Identify collection location for all species (state, county, elevation) for seeds used at the wetland mitigation site.

Delete **Line B of Subsection 3.2 SEEDING** and add the following:

- B. Apply seed at the rate indicated in the seed schedule shown in the plans. Within the wetland mitigation site, apply the seed in zones 1 and 2 at 20.2 kg per hectare and in zone 3 at 19.1 kg per hectare, using the broadcast method.

Add the following to **Line A of Subsection 3.4 BROADCAST METHOD**:

5. Seed all areas within the wetland mitigation site using the broadcast method.

Add the following to **Line C of Subsection 3.4 BROADCAST SEED**:

3. Within the wetland mitigation site, evenly in one direction using a hand-held or knapsack seeder.

Add the following to **Line D of Subsection 3.4 BROADCAST SEED**:

1. Apply seed when the soil is saturated within the wetland mitigation site only.

Add the following to **Line E of Subsection 3.4 BROADCAST SEED**:

4. For the wetland mitigation site, hand raking only as described in **Number 2 of Line E of Subsection 3.4 BROADCAST SEED**.

**SPECIAL PROVISION**

**SP-0006(29)229**

**SECTION 02932 M**

**TREES, SHRUBS, AND GROUNDCOVERS**

Add the following to **Subsection 1.8 SCHEDULING**

- C. Install plantings for the wetland mitigation site using the following schedule:

<u><b>Elevation (meters)</b></u>	<u><b>Planting Season</b></u>
1200 - 1800 m	April 15 - October 15

Delete **Number 2 of Line B of Subsection 3.2 INSTALLATION** and replace with the following:

2. Carefully remove the plant from its container, scarify the sides and bottom of the rootball if the plant appears “rootbound” or if “spiraling” is observed, and place it in the prepared hole.

November 16, 2001

**SPECIAL PROVISION**

**SP-0006(29)229**

**SECTION 02936 M**

**VEGETATION ESTABLISHMENT PERIOD**

Add the following to **Line A of Subsection 3.2 PLANT CARE**

3. Water all plants in Zone 3 until the surrounding soil is saturated once every two weeks.



**SPECIAL PROVISION**

**SP-0006(29)229**

**SECTION 02961 M**

**ROTOMILLING**

Delete Subsection 2.2.A.3 and replace with the following:

3. A maximum of 15 mm between the cutting teeth on the mandrel will be allowed if traffic is not allowed on rotomilled surfaces.

Add the following to Subsection 2.2.A:

4. A maximum of 6.35 mm between the cutting teeth on the mandrel will be allowed if traffic is allowed on rotomilled surfaces.

September 12, 2001

**Special Provision**

**SP-0006(29)229**

**SECTION 03310 M**

**STRUCTURAL CONCRETE**

Add the following to Paragraph 1.2 RELATED SECTIONS:

- L. Section 02250S: Temporary Shoring
- M. Section 02821: Chain Link Fencing and Gates
- N. Section 07105M: Waterproofing Membrane

Add the following paragraphs to PART 2 PRODUCTS:

**2.12 COMPOSITE DRAINAGE MATERIAL**

- A. Composite two-layer material, consisting of filter fabric and matting surface. The two layers are heat bonded together.
  - 1. Use polyester non-woven fabric.
  - 2. Use a compression resistat matting of three dimensional construction capable of multidirectional flow.

Add the following to Line B of Paragraph 3.1 PREPARATION:

- 10. Use the fractured fin pattern on all required concrete surfaces shown on the plans. Install the form liner in the forms per the manufacturer's recommendations.

**Summary Report**  
**Project: SP-0006(29)229**  
**SR-6; PRICE TO WELLINGTON**

**Version: 1**

Detail	Alt Group	Alt #	Description		
<b>10 - ROADWAY</b>	0	0			
Item Number	Description	Qty	Unit		
012850010	Mobilization	1	Lump		
013150010	Public Information Services	1	Lump		
015540005	Traffic Control	1	Lump		
015610010	Environmental Fence	415	m		
015710010	Check Dam (Straw or Hay Bale)	462	m		
015710030	Silt Fence	1,034	m		
015710070	Drop-Inlet Barriers (Silt Fence)	52	m		
015710080	Sediment Trap	3	m3		
01571011*	Temporary Erosion Control (Contingent Sum)	1	Lump		
015720010	Dust Control and Watering	21,500	kL		
017210010	Survey (Specialty Item)	1	Lump		
018910030	Mailbox Assembly	26	Each		
018920050	Reconstruct Manhole	61	Each		
02056001P	Granular Borrow	85,300	m3		
020750020	Geotextiles - Erosion Control	145	m2		
022210030	Remove Catch Basin	2	Each		
022210040	Remove Cleanout Box	1	Each		
022210050	Remove Tree	48	Each		
022210075	Remove Guardrail	265	m		
022210080	Remove Fence	5,639	m		
022210095	Remove Pipe Culvert	381	m		
02221010*	Remove Mailbox	27	Each		
02221011*	Remove Right-of-Way Markers	4	Each		
02221012*	Remove Wall	9	m		
022220005	Remove Concrete Sidewalk	1,252	m2		
022220010	Remove Concrete Driveway	241	m2		
022220020	Remove Concrete Curb and Gutter	804	m		
022220040	Remove Asphalt Pavement	41,500	m2		
022310010	Clearing and Grubbing	1	Lump		

**Summary Report**  
**Project: SP-0006(29)229**  
**SR-6; PRICE TO WELLINGTON**

**Version: 1**

Detail	Alt Group	Alt #	Description		
<b>10 - ROADWAY</b>	0	0			
Item Number	Description	Qty	Unit		
023160020	Roadway Excavation (Plan Quantity)	110,000	m3		
023180010	Small Ditch Excavation	3,400	m3		
023730010	Loose Riprap	41	m3		
02610000*	Plug Pipe	2	Each		
026100004	450 mm Pipe Culvert Class A	748	m		
026100006	600 mm Pipe Culvert Class A	285	m		
026100048	600 mm Corrugated Steel Pipe Culvert Class A	68	m		
026100052	900 mm Corrugated Steel Pipe Culvert Class A	22	m		
02610009*	1800 mm x 1200 mm Corrugated Steel Pipe Arch Culvert Class A	8	m		
026100170	600 mm Smooth Lined Pipe Culvert Class A	148	m		
026100414	600 mm Reinforced Concrete Pipe Culvert Class B	52	m		
026100418	900 mm Reinforced Concrete Pipe Culvert Class B	16	m		
026130030	Culvert End Sections 450 mm	69	Each		
026130040	Culvert End Sections 600 mm	23	Each		
026130060	Culvert End Sections 900 mm	4	Each		
026140040	Salvage and Relay Culvert End Section	2	Each		
026350035	Rectangular Grate and Frame (Standard Grating), Std Dwg 1703	4	Each		
026350040	Rectangular Grate And Frame (Bicycle Safe Grating), Std Dwg 1703	8	Each		
027050010	Asphalt Pavement Sawing	2,388,000	mm•m		
02721007P	Untreated Base Course 19 mm or 25 mm Max	28,000	m3		
027410020	HMA - 19.0 mm	69,000	Mg		
027480030	Emulsified Asphalt SS-1	102	Mg		
027490010	Asphalt Concrete Driveway	43	Each		
027650005	Traffic Striping Paint	1,309	L		
027650020	Pavement Message Paint	91	Each		
02771001*	Concrete Waterway	20	m2		
027710015	Concrete Curb Type B4	4	m		
02771002*	Waterway Transition	2	Each		
027710025	Concrete Curb and Gutter Type B1	1,599	m		

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Detail	Alt Group	Alt #	Description		
<b>10 - ROADWAY</b>	0	0			
Item Number	Description	Qty	Unit		
027710040	Concrete Driveway Flared 150 mm Thick	597	m2		
027710045	Concrete Driveway Flared 175 mm Thick	81	m2		
027710060	Disabled Pedestrian Ramp Type A	9	m2		
027710075	Disabled Pedestrian Ramp Type D	7	m2		
027710085	Disabled Pedestrian Ramp Type G	8	m2		
027760010	Concrete Sidewalk	2,408	m2		
027760030	Concrete Flatwork 100 mm thick	130	m2		
027850030	Chip Seal Coat Type C	154,934	m2		
027850055	Emulsified Asphalt CRS-2P	300	Mg		
028210024	1.2 m Chain Link Fence, Type III	770	m		
028210028	1.8 m Chain Link Fence, Type III	46	m		
028210042	Chain Link Fence Type I with Barb Wire Arm	167	m		
028210044	Chain Link Brace Post	94	Each		
028210052	Chain Link Gate H- 1.8 m X W- 1.2 m	1	Each		
028210072	Chain Link Gate H- 1.2 m X W- 3.0 m	2	Each		
028210080	Chain Link Gate H- 1.2 m X W- 3.6 m	1	Each		
028210084	Chain Link Gate H- 1.8 m X W- 3.6 m	3	Each		
02821008P	Sliding Chain Link Gate H-1.8 m X W-9.1 m	2	Each		
028220010	Right-of-Way Fence, Type A (Metal Post)	319	m		
028220020	Right-of-Way Fence, Type B (Metal Post)	4,705	m		
028220075	Right-of-Way Gate 2.4 m	4	Each		
028220080	Right-of-Way Gate 3.0 m	8	Each		
028220090	Right-of-Way Gate 4.3 m	3	Each		
028220105	Right-of-Way Brace Post	103	Each		
02822011*	Temporary Fence	3,200	m		
028420010	Delineator Type I	104	Each		
028420030	Delineator - Culvert Marker	33	Each		
028960010	Boundary Survey and Survey Plat	1	Lump		
028960020	Right-of-Way Markers	54	Each		

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Detail	Alt Group	Alt #	Description		
<b>10 - ROADWAY</b>	0	0			
Item Number	Description	Qty	Unit		
029610030	Rotomilling - 50 mm	38,041	m2		
032110010	Reinforcing Steel - Coated	993	kg		
033100020	Concrete - Small Structure	16	m3		

Detail	Alt Group	Alt #	Description		
<b>20 - STRUCTURES</b>	0	0	Drawing No. EIE-1612		
Item Number	Description	Qty	Unit		
02221002*	Remove Box Culvert (Both Ends)	1	Each		
028210026	1.5 m Chain Link Fence, Type III	22	m		
032110010	Reinforcing Steel - Coated	35,908	kg		
033100010	Structural Concrete (Est. Lump Qty: 298 cubic meter)	1	Lump		

Detail	Alt Group	Alt #	Description		
<b>20 - STRUCTURES</b>	0	0	Drawing No. V-2025		
Item Number	Description	Qty	Unit		
022210055	Remove Concrete Headwall	2	Each		
022210095	Remove Pipe Culvert	1	m		
02610012*	5512 mm x 3607 mm Corrugated Steel Pipe Arch Culvert Class C	13	m		
028210026	1.5 m Chain Link Fence, Type III	13	m		
032110010	Reinforcing Steel - Coated	2,314	kg		
033100010	Structural Concrete (Est. Lump Qty: 35 cubic meter)	1	Lump		
051200010	Structural Steel (Specialty Item) (Est. Lump Qty: 1130 kilogram)	1	Lump		

Detail	Alt Group	Alt #	Description		
<b>20 - STRUCTURES</b>	0	0	RETAINING WALL R-395A		
Item Number	Description	Qty	Unit		
03310010*	CIP Retaining Wall R-395A	1	Lump		

Detail	Alt Group	Alt #	Description		
<b>20 - STRUCTURES</b>	0	0	RETAINING WALL R-395B		
Item Number	Description	Qty	Unit		
03310010*	CIP Retaining Wall R-395	1	Lump		

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Detail	Alt Group	Alt #	Description		
<b>30 - LANDSCAPING</b>	0	0			
Item Number	Description	Qty	Unit		
029110020	Straw Mulch	5	ha		
02912003*	Strip amd Stockpile Topsoil (Plan Quantity)	5,017	m3		
02912004*	Spread Stockpiled Topsoil (Plan Quantity)	46,000	m2		
029220010	Drill Seed	3	ha		
029220040	Broadcast Seed	114	100•m2		
02922005*	Broadcast Seed - Wetland Zone 1	26	100•m2		
02922006*	Broadcast Seed - Wetland Zone 3	11	100•m2		
029220060	Turf Sod	2,800	m2		
02931001P	Plant - Sandbar Willow - No. 1 Container	111	Each		
02931002P	Plant - Whiplash Willow - No. 1 Container	86	Each		
02931003P	Plant - Drummond Willow - No. 1 Container	74	Each		
02931004P	Plant - Yellow Willow - No. 1 Container	74	Each		
02932001*	Plant - Nebraska Sedge Plugs - 250 mm Plug	210	Each		
02932002*	Plant - Hard-stem Bulrush - 250 mm Plug	210	Each		
02932003*	Plant - Olney's Bulrush - 250 mm Plug	210	Each		
02932004*	Plant - Soft-stem Bulrush - 250 mm Plug	210	Each		
02932005*	Plant - Giant Bur-reed - 250 mm Plug	210	Each		
02932006*	Plant - Golden Currant - No. 1 Container	25	Each		
02932007*	Plant - Red-osier Dogwood - No. 1 Container	6	Each		
02932008*	Plant - Peachleaf Willow - No. 5 Container	6	Each		
02932009*	Plant - Fremont Cottonwood - No. 5 Container	12	Each		
02932010*	Plant - Skunkbrush - No. 1 Container	19	Each		
02932011*	Plant - Chokecherry - No. 1 Container	19	Each		
029360010	Establishment Period	1	Lump		
029380010	Tree Pruning	8	Each		

Detail	Alt Group	Alt #	Description		
<b>40 - SIGNING</b>	0	0			
Item Number	Description	Qty	Unit		
018910010	Move Street Sign	2	Each		
028910005	Remove Sign	39	Each		

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Detail	Alt Group	Alt #	Description	Qty	Unit
<b>40 - SIGNING</b>	0	0			
Item Number	Description		Qty	Unit	
028910010	Relocate Sign		13	Each	
028910075	Auxiliary Sign Type A-2		2	m2	
028910130	Auxiliary Sign Type P-I		3	m2	
028910160	Sign Type P-1 610 mm X 762 mm		14	Each	
028910170	Sign Type P-1 762 mm X 762 mm		6	Each	
028910185	Auxiliary Sign Type P-2		6	m2	
02891019P	Sign Type P-1 914 mm X 914 mm		5	m2	
028910225	Sign Type P-2 762 mm X 762 mm		6	Each	
02891027*	Sign Type P-2 254 mm X 914 mm		2	m2	
02891028*	Sign Type P-1 914 mm X 1219 mm		6	m2	
02891029*	Sign Type P-1 1219 mm X 610 mm		3	m2	
02891030*	Sign Type P-1 1219 X 229 mm		1	m2	
02891031*	Sign Type P-1 610 mm X 1219 mm		2	m2	
02891032*	Sign Type P-1 1500 mm X 900 mm		3	m2	
02891033*	Sign Type P-2 5334 mm X 2896 mm		16	m2	
02891034*	Sign Type P-2 2438 mm X 1372 mm		4	m2	
02891035*	Sign Type P-2 2591 mm X 1067 mm		3	m2	
02891036*	Sign Type A-2 1225 mm X 483 mm		1	m2	
02891037*	Sign Type A-2 1067 mm X 457 mm		1	m2	
02891038*	Sign Type A-2 1219 mm X 457 mm		1	m2	
02891039*	Sign Type P-2 1829 mm X 610 mm		2	m2	
02891040*	Sign Type P-1 3658 mm X 1981 mm		15	m2	
02891041*	Relocate Overhead Sign Structure		1	Lump	

Detail	Alt Group	Alt #	Description	Qty	Unit
<b>50 - SIGNALS</b>	0	0			
Item Number	Description		Qty	Unit	
028920015	Signal Power Source		1	Each	
02892001D	Traffic Signal System Overhead School Flasher		1	Lump	
028920020	Installation of State Furnished Material		1	Lump	
028920025	Installation of State Furnished Mast Arm Mounted Sign		2	Each	



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Detail	Alt Group	Alt #	Description		
<b>60 - LIGHTING</b>	0	0			
Item Number	Description			Qty	Unit
165250015	Lighting Power Source			1	Each
16525001D	Highway Lighting System Old Wellington Road			1	Lump

Detail	Alt Group	Alt #	Description		
<b>75 - MISC BID</b>	0	0			
Item Number	Description			Qty	Unit
01557000*	Lane Rental			4,000	Hour

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**10 - ROADWAY**

**Alt Group: 0    Alt #: 0**

Item Number		Description				Use Qty	Unit
<b>015610010</b>		<b>Environmental Fence</b>				415	m
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
DT-0	MITIGATION				415.0	Wetland Mitigation Site	
					415.0		

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**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>015710010</b>	<b>Check Dam (Straw or Hay Bale)</b>				462	m
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DR-1	8+561.000	18.82 LT			3.0	
DR-1	8+561.000	21.01 RT			3.0	
DR-1	8+622.000	19.08 LT			3.0	
DR-1	8+622.000	23.07 RT			3.0	
DR-1	8+683.000	21.75 LT			3.0	
DR-1	8+683.000	22.58 RT			3.0	
DR-10	11+184.000	20.70 LT			3.0	
DR-10	11+245.000	20.40 LT			3.0	
DR-10	11+306.000	18.00 LT			3.0	
DR-10	11+306.000	19 RT			3.0	
DR-10	11+367.000	18.00 LT			3.0	
DR-10	11+367.000	19 RT			3.0	
DR-11	11+428.000	18 RT			3.0	
DR-11	11+428.000	18.00 LT			3.0	
DR-11	11+489.000	19 RT			3.0	
DR-11	11+550.000	18 RT			3.0	
DR-11	11+611.000	21 RT			3.0	
DR-12	11+733.000	21 RT			3.0	
DR-12	11+794.000	18.00 LT			3.0	
DR-12	11+794.000	19 RT			3.0	
DR-12	11+855.000	19.00 LT			3.0	
DR-12	11+916.000	18.00 LT			3.0	
DR-12	11+916.000	18.00 RT			3.0	
DR-12	11+977.000	18.00 LT			3.0	
DR-12	11+977.000	26 RT			3.0	
DR-13	12+036.000	18.00 LT			3.0	
DR-13	12+043.000	26 RT			3.0	
DR-13	12+099.000	18.00 LT			3.0	
DR-13	12+099.000	24 RT			3.0	
DR-13	12+160.000	18.00 LT			3.0	
DR-13	12+160.000	24 RT			3.0	
DR-13	12+221.000	18.00 LT			3.0	
DR-13	12+221.000	21 RT			3.0	
DR-13	12+282.000	18 RT			3.0	
DR-13	12+282.000	18.00 LT			3.0	
DR-14	12+343.000	18.00 LT			3.0	
DR-14	12+343.000	22 RT			3.0	

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Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DR-14	12+404.000	20 LT			3.0	
DR-14	12+449.000	18.00 LT			3.0	
DR-14	12+526.000	18.00 LT			3.0	
DR-14	12+587.000	18.00 LT			3.0	
DR-14	12+587.000	21 RT			3.0	
DR-15	12+648.000	18.00 LT			3.0	
DR-15	12+709.000	18 RT			3.0	
DR-15	12+710.000	18 LT			3.0	
DR-15	12+770.000	18.00 LT			3.0	
DR-15	12+770.000	19 RT			3.0	
DR-15	12+831.000	18.00 LT			3.0	
DR-15	12+831.000	20 RT			3.0	
DR-15	12+892.000	18.00 LT			3.0	
DR-15	12+892.000	20 RT			3.0	
DR-16	12+953.000	18.00 LT			3.0	
DR-16	12+953.000	23 RT			3.0	
DR-16	13+014.000	18.00 LT			3.0	
DR-16	13+014.000	23 RT			3.0	
DR-16	13+075.000	18.00 LT			3.0	
DR-16	13+075.000	23 RT			3.0	
DR-16	13+136.000	18.00 LT			3.0	
DR-16	13+136.000	24 RT			3.0	
DR-16	13+197.000	18.00 LT			3.0	
DR-16	13+197.000	21 RT			3.0	
DR-17	13+258.000	18.00 LT			3.0	
DR-17	13+258.000	27 RT			3.0	
DR-17	13+319.000	18.00 LT			3.0	
DR-17	13+319.000	26 RT			3.0	
DR-17	13+441.000	28 RT			3.0	
DR-17	13+450.000	22 LT			3.0	
DR-18	13+502.000	18.00 LT			3.0	
DR-18	13+502.000	30 RT			3.0	
DR-18	13+563.000	18.00 LT			3.0	
DR-18	13+563.000	18.10 RT			3.0	
DR-18	13+624.000	18.00 LT			3.0	
DR-18	13+624.000	18.00 RT			3.0	
DR-18	13+685.000	18.00 LT			3.0	
DR-18	13+746.000	18.00 RT			3.0	
DR-18	13+746.000	18.05 LT			3.0	
DR-19	13+807.000	19.00 LT			3.0	
DR-19	13+833.000	30 RT			3.0	

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Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DR-19	13+868.000	24.23 LT			3.0	
DR-19	13+871.000	28.97 RT			3.0	
DR-19	13+929.000	20.99 LT			3.0	
DR-19	13+929.000	22.86 RT			3.0	
DR-19	13+990.000	19.10 LT			3.0	
DR-19	13+990.000	22.82 RT			3.0	
DR-19	14+051.000	20.13 LT			3.0	
DR-19	14+051.000	22.88 RT			3.0	
DR-2	8+927.000	20.38 RT			3.0	
DR-2	8+988.000	19.64 RT			3.0	
DR-20	14+112.000	20.20 LT			3.0	
DR-20	14+112.000	22.00 RT			3.0	
DR-20	14+173.000	18.68 LT			3.0	
DR-20	14+173.000	22.00 RT			3.0	
DR-20	14+234.000	18.00 LT			3.0	
DR-20	14+234.000	21.36 RT			3.0	
DR-20	14+295.000	18.00 LT			3.0	
DR-20	14+295.000	21.70 RT			3.0	
DR-20	14+356.000	20.21 RT			3.0	
DR-21	14+417.000	20 RT			3.0	
DR-21	14+478.000	21 RT			3.0	
DR-21	14+539.000	20 RT			3.0	
DR-3	9+049.000	18.91 RT			3.0	
DR-3	9+090.000	18.42 RT			3.0	
DR-3	9+171.000	18.19 RT			3.0	
DR-3	9+232.000	18.59 RT			3.0	
DR-3	9+293.000	19.14 RT			3.0	
DR-4	9+354.000	19.83 RT			3.0	
DR-4	9+417.000	18.25 RT			3.0	
DR-4	9+476.000	18.00 LT			3.0	
DR-4	9+476.000	18.15 RT			3.0	
DR-4	9+537.000	18.00 LT			3.0	
DR-4	9+537.000	18.10 RT			3.0	
DR-4	9+598.000	18.00 LT			3.0	
DR-4	9+598.000	19 RT			3.0	
DR-5	9+638.000	19 RT			3.0	
DR-5	9+659.000	19.69 LT			3.0	
DR-5	9+720.000	19 RT			3.0	
DR-5	9+720.000	19.99 LT			3.0	
DR-5	9+760.000	18 RT			3.0	
DR-5	9+781.000	19.39 LT			3.0	

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Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DR-5	9+842.000	18.00 RT			3.0	
DR-5	9+842.000	18.59 LT			3.0	
DR-6	10+025.000	18.00 LT			3.0	
DR-6	10+025.000	19 RT			3.0	
DR-6	10+086.000	18.00 LT			3.0	
DR-6	10+086.000	20 RT			3.0	
DR-6	10+147.000	19.40 LT			3.0	
DR-6	10+147.000	22 RT			3.0	
DR-6	9+903.000	18.00 LT			3.0	
DR-6	9+903.000	18.00 RT			3.0	
DR-6	9+960.000	18.00 LT			3.0	
DR-6	9+964.000	18 RT			3.0	
DR-7	10+208.000	19.30 LT			3.0	
DR-7	10+208.000	20 RT			3.0	
DR-7	10+254.000	18.80 LT			3.0	
DR-7	10+269.000	19 RT			3.0	
DR-7	10+330.000	18 RT			3.0	
DR-7	10+330.000	18.70 LT			3.0	
DR-7	10+391.000	18.00 LT			3.0	
DR-7	10+452.000	18.00 LT			3.0	
DR-7	10+452.000	19 RT			3.0	
DR-8	10+513.000	18.00 LT			3.0	
DR-8	10+513.000	19 RT			3.0	
DR-8	10+574.000	18.00 LT			3.0	
DR-8	10+574.000	19 RT			3.0	
DR-8	10+635.000	18 RT			3.0	
DR-8	10+635.000	18.00 LT			3.0	
DR-8	10+688.000	18.00 LT			3.0	
DR-8	10+696.000	19 RT			3.0	
DR-8	10+757.000	18.00 LT			3.0	
DR-9	10+818.000	18.90 LT			3.0	
DR-9	10+879.000	20.22 LT			3.0	
DR-9	10+940.000	20.80 LT			3.0	
DR-9	11+001.000	20.40 LT			3.0	
DR-9	11+062.000	18.90 LT			3.0	
					462.0	

### Note # Note

- 1 Assume 3 bales per check dam at 1 m per bale

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**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description					Use Qty	Unit
<b>015710030</b>	<b>Silt Fence</b>					1,034	m
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
DR-10	11+100.000	31.05 RT	11+275.130	36.88 RT	187.84		
DR-10	11+216.900	34.37 LT	11+225.190	34.02 LT	25.27		
DR-11	11+654.01	29.25 LT	11+660.91	32.41 LT	15.1		
DR-11	11+692.68	33.62 RT	11+698.30	30.41 RT	15.24		
DR-12	11+850.620	38.61 RT	11+861.310	37.68 RT	38.8		
DR-14	12+359.910	30.78 RT	12+477.400	35.15 RT	139.24		
DR-14	12+414.410	23.86 LT	12+421.200	23.77 LT	11.09		
DR-14	12+501.470	30.20 RT	12+527.100	27.37 RT	36.8		
DR-2	8+733.16	24.38 RT	8+746.49	23.79 RT	13.65		
DR-2	8+734.58	25.28 LT	8+738.39	25.22 LT	15.7		
DR-5	9+643.080	21.71 RT	9+704.760	21.75 RT	63.8		
DR-5	9+767.160	22.96 RT	9+790.840	23.68 RT	30.46		
DR-7	10+359.050	36.99 RT	10+364.350	36.85 RT	45.92		
DR-8	10+738.120	34.06 RT	10+800.000	19.56 RT	72.44		
DR-9	10+800.000	19.56 RT	11+100.000	31.05 RT	302.72		
DR-9	10+857.210	29.37 LT	10+861.960	31.00 LT	19.53		
					1,033.6		

<b>015710070</b>	<b>Drop-Inlet Barriers (Silt Fence)</b>					52	m
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
DR-2	8+836.000	12.22 LT			5.7		
DR-2	8+913.000	12.22 LT			5.7		
DR-21	14+480.000	12.22 LT			5.7		
DR-21	14+480.000	17.24 LT			5.7		
DR-21	14+608.000	12.22 LT			5.7		
DR-22	14+735.000	12.22 LT			5.7		
DR-22	14+735.000	12.22 RT			5.7		
DR-4	9+406.100	12.22 LT			5.7		
DR-4	9+409.830	15.95 LT			5.7		
					51.3		

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**Version: 1**

**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number		Description				Use Qty		Unit
<b>015710080</b>		<b>Sediment Trap</b>				3		m3
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment		
DR-11	11+620.000	20.00	LT		0.5			
DR-11	11+664.000	27.02	RT		0.5			
DR-12	11+705.000	25.53	RT		0.5			
DR-2	8+715.000	20.46	RT		0.5			
DR-2	8+718.000	21.00	LT		0.5			
					2.5			



**Detailed Report**  
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**SR-6; PRICE TO WELLINGTON**

**Version: 1**

**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>015720010</b>	<b>Dust Control and Watering</b>				21,500	kL
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-1	8+500.000		8+700.000		443.0	
RD-10	11+100.000		11+400.000		771.0	
RD-11	11+400.000		11+700.000		1,212.0	
RD-12	11+700.000		12+000.000		973.0	
RD-13	12+000.000		12+300.000		995.0	
RD-14	12+300.000		12+600.000		927.0	
RD-15	12+600.000		12+900.000		805.0	
RD-16	12+900.000		13+200.000		910.0	
RD-17	13+200.000		13+500.000		2,111.0	
RD-18	13+500.000		13+800.000		1,170.0	
RD-19	13+800.000		14+100.000		2,123.0	
RD-2	8+700.000		9+000.000		792.0	
RD-20	14+100.000		14+400.000		1,003.0	
RD-21	14+400.000		14+700.000		1,060.0	
RD-22	14+700.000		14+912.655		678.0	
RD-3	9+000.000		9+300.000		610.0	
RD-4	9+300.000		9+600.000		688.0	
RD-5	9+600.000		9+900.000		774.0	
RD-6	9+900.000		10+200.000		799.0	
RD-7	10+200.000		10+500.000		744.0	
RD-7	2+000.000		2+099.086		84.0	2000 East
RD-8	10+500.000		10+800.000		757.0	
RD-9	10+800.000		11+100.000		759.0	
					21,188.0	

Note # Note

- 1 Assume 0.148 kL/m3 of Fill, 0.148 kL/m3 of Granular Borrow, and 0.173 kL/m3 of Untreated Base Course

**Detailed Report**  
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**SR-6; PRICE TO WELLINGTON**

**Version: 1**

**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>018910030</b>	<b>Mailbox Assembly</b>				26	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-11	11+525.000	12.30 LT			1.0	DOUBLE
RD-13	12+020.000	12.30 LT			1.0	DOUBLE
RD-13	12+256.000	12.30 LT			1.0	
RD-15	12+685.000	12.30 LT			1.0	DOUBLE
RD-15	12+685.800	12.30 LT			1.0	
RD-15	12+840.000	12.30 LT			1.0	
RD-16	13+140.000	12.30 LT			1.0	
RD-18	13+609.000	12.30 LT			1.0	
RD-18	13+711.000	12.30 LT			1.0	
RD-19	13+910.000	12.30 LT			1.0	
RD-2	8+780.000	14.70 LT			1.0	DOUBLE
RD-2	8+780.800	14.70 LT			1.0	DOUBLE
RD-2	8+781.600	14.70 LT			1.0	DOUBLE
RD-2	8+782.400	14.70 LT			1.0	
RD-2	8+836.000	14.70 LT			1.0	
RD-2	8+913.000	14.70 LT			1.0	DOUBLE
RD-2	8+913.800	14.70 LT			1.0	
RD-20	14+380.000	14.70 LT			1.0	DOUBLE
RD-3	9+010.000	14.70 LT			1.0	DOUBLE
RD-3	9+010.800	14.70 LT			1.0	DOUBLE
RD-3	9+011.600	14.70 LT			1.0	
RD-3	9+135.000	14.70 LT			1.0	
RD-3	9+161.000	14.70 LT			1.0	DOUBLE
RD-3	9+216.000	14.70 LT			1.0	
RD-4	9+320.000	14.70 LT			1.0	
RD-7	10+375.000	12.30 LT			1.0	
					<hr/> 26.0	

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**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>018920050</b>	<b>Reconstruct Manhole</b>				61	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
UT-1	8+506.000	1.59 LT			1.0	
UT-1	8+630.000	6.51 LT			1.0	
UT-10	11+163.000	9.67 LT			1.0	
UT-10	11+283.000	9.63 LT			1.0	
UT-10	11+324.000	15.08 RT			1.0	
UT-11	11+405.000	9.65 LT			1.0	
UT-11	11+648.000	11.02 LT			1.0	
UT-11	11+678.000	10.67 LT			1.0	
UT-12	11+769.000	9.45 LT			1.0	
UT-12	11+897.000	10.84 LT			1.0	
UT-13	12+013.000	9.33 LT			1.0	
UT-13	12+261.000	7.74 LT			1.0	
UT-15	12+603.000	8.34 LT			1.0	
UT-15	12+636.000	7.72 LT			1.0	
UT-15	12+842.000	13.46 LT			1.0	
UT-15	12+880.000	7.72 LT			1.0	
UT-16	13+003.000	7.70 LT			1.0	
UT-16	13+125.000	7.65 LT			1.0	
UT-16	13+142.000	13.19 RT			1.0	TELEPHONE MANHOLE
UT-17	13+246.000	7.72 LT			1.0	
UT-17	13+361.000	7.98 LT			1.0	
UT-17	13+362.000	11.44 RT			1.0	
UT-17	13+395.000	15.65 LT			1.0	
UT-17	13+446.000	11.74 RT			1.0	
UT-18	13+568.000	10.98 RT			1.0	
UT-18	13+690.000	11.00 RT			1.0	
UT-19	13+813.000	10.69 RT			1.0	
UT-19	13+935.000	10.80 RT			1.0	
UT-19	14+057.000	18.03 LT			1.0	SEWER
UT-19	14+058.000	10.89 RT			1.0	
UT-19	14+060.000	18.22 LT			1.0	WATER
UT-2	8+710.000	12.03 LT			1.0	
UT-2	8+749.000	13.28 LT			1.0	
UT-2	8+751.000	13.13 LT			1.0	
UT-2	8+809.000	8.64 LT			1.0	
UT-2	8+930.000	8.47 LT			1.0	
UT-20	14+143.000	10.51 LT			1.0	WATER

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Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
UT-21	14+425.000	7.57 LT			1.0	
UT-21	14+606.000	7.77 LT			1.0	
UT-22	14+851.000	11.16 LT			1.0	
UT-22	14+856.000	9.24 RT			1.0	
UT-3	9+053.000	8.38 LT			1.0	
UT-3	9+175.000	8.21 LT			1.0	
UT-3	9+297.000	7.60 LT			1.0	
UT-4	9+407.000	14.75 RT			1.0	
UT-4	9+416.000	7.03 LT			1.0	
UT-4	9+448.000	13.06 RT			1.0	
UT-4	9+537.000	9.36 LT			1.0	
UT-5	9+648.000	9.59 LT			1.0	
UT-5	9+761.000	9.21 LT			1.0	
UT-5	9+873.000	9.41 LT			1.0	
UT-6	10+099.000	8.19 LT			1.0	
UT-6	9+986.000	10.03 LT			1.0	
UT-7	10+213.000	10.10 LT			1.0	
UT-7	10+329.000	9.99 LT			1.0	
UT-7	10+438.000	9.87 LT			1.0	
UT-8	10+561.000	9.96 LT			1.0	
UT-8	10+681.000	9.89 LT			1.0	
UT-9	10+805.000	9.89 LT			1.0	
UT-9	10+940.000	9.60 LT			1.0	
UT-9	11+045.000	9.65 LT			1.0	
					61.0	

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**Version: 1**

**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description					Use Qty	Unit
<b>02056001P</b>	<b>Granular Borrow</b>					85,300	m3
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
RD-1	8+500.000		8+700.000		1,944.0		
RD-10	11+100.000		11+400.000		3,721.0		
RD-11	11+400.000		11+700.000		3,721.0		
RD-12	11+700.000		12+000.000		3,721.0		
RD-13	12+000.000		12+300.000		3,721.0		
RD-14	12+300.000		12+600.000		3,721.0		
RD-15	12+600.000		12+900.000		3,721.0		
RD-16	12+900.000		13+200.000		3,721.0		
RD-17	13+200.000		13+500.000		4,937.0		
RD-18	13+500.000		13+800.000		4,816.0		
RD-19	13+800.000		14+100.000		4,816.0		
RD-2	8+700.000		9+000.000		2,630.0		
RD-20	14+100.000		14+400.000		4,727.0		
RD-21	14+400.000		14+700.000		4,152.0		
RD-22	14+700.000		14+912.655		2,629.0		
RD-3	9+000.000		9+300.000		2,591.0		
RD-4	9+300.000		9+600.000		3,035.0		
RD-5	9+600.000		9+900.000		3,720.0		
RD-6	9+900.000		10+200.000		3,721.0		
RD-7	10+200.000		10+500.000		3,633.0		
RD-7	2+000.000		2+099.086		385.0	2000 East	
RD-8	10+500.000		10+800.000		3,722.0		
RD-9	10+800.000		11+100.000		3,722.0		
					81,227.0		

**020750020**

**Geotextiles - Erosion Control**

145 m2

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DT-13	11+623.100	20.7 LT	11+648.000	26.6 LT	53.91	
DT-13	11+662.900	24.1 LT	11+694.000	15.8 LT	68.63	
DT-13	8+728.600	21.0 LT	8+734.900	28.3 LT	20.16	
					142.7	

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**Version: 1**

**10 - ROADWAY**

**Alt Group: 0    Alt #: 0**

Item Number		Description				Use Qty		Unit
<b>022210030</b>		<b>Remove Catch Basin</b>				2		Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment		
RD-21	14+608.000	12.25 LT			1.0			
RD-21	14+647.000	12.66 LT			1.0			
					2.0			
<b>022210040</b>		<b>Remove Cleanout Box</b>				1		Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment		
RD-1	8+652.000	0.6 RT			1.0			
					1.0			

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**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number		Description				Use Qty	Unit
<b>022210050</b>		<b>Remove Tree</b>				48	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
RD-13	12+046.000	19 RT			1.0		
RD-13	12+071.000	24 RT			1.0		
RD-13	12+078.000	23 RT			1.0		
RD-13	12+090.000	21 RT			1.0		
RD-13	12+276.000	18.82 LT			1.0		
RD-13	12+282.000	18.88 LT			1.0		
RD-13	12+289.000	18.71 LT			1.0		
RD-14	12+462.000	15.19 RT			1.0		
RD-14	12+584.000	13.53 LT			1.0		
RD-15	12+718.000	13.63 LT			1.0		
RD-15	12+723.000	13.89 LT			1.0		
RD-15	12+728.000	13.81 LT			1.0		
RD-18	13+626.000	15.45 LT			1.0		
RD-18	13+631.000	15.24 LT			1.0		
RD-18	13+635.000	15.17 LT			1.0		
RD-18	13+640.000	15.30 LT			1.0		
RD-18	13+645.000	15.21 LT			1.0		
RD-19	13+850.000	17.80 RT			1.0		
RD-20	14+339.000	17.31 LT			1.0		
RD-20	14+360.000	13.36 RT			1.0		
RD-21	14+454.000	16.4 RT			1.0		
RD-21	14+460.000	16.1 RT			1.0		
RD-21	14+466.000	15.9 RT			1.0		
RD-21	14+471.000	16.04 RT			1.0		
RD-21	14+593.000	12.61 RT			1.0		
RD-21	14+609.000	12.25 RT			1.0		
RD-21	14+621.000	12.03 RT			1.0		
RD-21	14+635.000	12.53 RT			1.0		
RD-21	14+656.000	11.77 RT			1.0		
RD-21	14+664.000	11.77 RT			1.0		
RD-21	14+673.000	11.52 RT			1.0		
RD-21	14+680.000	11.73 RT			1.0		
RD-21	14+688.000	11.55 RT			1.0		
RD-21	14+699.000	11.76 RT			1.0		
RD-22	14+708.000	11.38 RT			1.0		
RD-22	14+720.000	11.56 RT			1.0		
RD-22	14+730.000	11.28 RT			1.0		

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## SR-6; PRICE TO WELLINGTON

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-22	14+745.000	11.34 RT			1.0	
RD-22	14+754.000	10.70 RT			1.0	
RD-22	14+763.000	10.81 RT			1.0	
RD-22	14+777.000	10.88 RT			1.0	
RD-22	14+792.000	11.01 RT			1.0	
RD-22	14+802.000	11.16 RT			1.0	
RD-22	14+835.000	10.96 RT			1.0	
RD-22	14+845.000	11.76 RT			1.0	
RD-22	14+850.000	12.09 RT			1.0	
RD-22	14+874.000	13.86 RT			1.0	
RD-22	14+890.000	14.27 RT			1.0	
					<hr/> 48.0	

### 022210075 Remove Guardrail

265 m

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-11	11+642.000	LT	11+697.000	LT	54.82	
RD-11	11+647.000	RT	11+700.000	RT	52.87	
RD-12	11+700.000	RT	11+702.000	RT	1.59	
RD-2	8+708.000	RT	8+770.000	RT	61.97	
RD-2	8+720.000	LT	8+760.000	LT	39.22	
RD-3	9+049.000	LT	9+103.000	LT	54.36	
					<hr/> 264.83	



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**Version: 1**

**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>022210080</b>	<b>Remove Fence</b>				5,639	m
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DT-0	MITIGATION				322.0	Wetland Mitigation Site
RD-10	11+100.000	14.41 LT	11+119.000	31.00 LT	35.67	
RD-10	11+131.000	14.57 LT	11+400.000	14.46 LT	269.0	
RD-10	11+199.000	15.01 LT	11+199.000	27.86 LT	25.7	2 fences
RD-10	11+340.000	14.76 LT	11+340.000	24.30 LT	9.54	
RD-11	11+400.000	14.46 LT	11+478.000	24.30 LT	87.61	
RD-11	11+482.000	24.30 LT	11+502.000	15.20 LT	29.11	
RD-11	11+508.000	15.20 LT	11+530.000	15.15 LT	22.0	
RD-11	11+515.000	15.07 LT	11+515.000	19.80 LT	4.73	
RD-11	11+534.000	15.13 LT	11+587.000	15.34 LT	53.0	
RD-11	11+541.000	15.08 LT	11+541.000	25.00 LT	9.92	
RD-11	11+596.000	15.42 LT	11+660.000	9.91 LT	66.0	
RD-11	11+634.000	15.20 LT	11+634.000	28.00 LT	12.8	
RD-11	11+672.000	14.64 RT	11+677.000	31.76 RT	17.84	
RD-11	11+673.000	11.72 LT	11+700.000	16.40 LT	28.9	
RD-11	11+689.000	14.32 RT	11+699.000	30.82 RT	19.29	
RD-11	11+690.900	16.48 LT	11+684.800	24.00 LT	9.68	
RD-12	11+700.000	16.40 LT	11+756.000	22.50 LT	71.52	
RD-12	11+759.000	16.36 LT	11+752.000	24.00 LT	10.36	
RD-12	11+761.000	22.50 LT	11+981.000	24.34 LT	247.19	
RD-12	11+995.000	14.58 LT	12+000.000	14.65 LT	5.0	
RD-13	12+000.000	14.65 LT	12+012.000	14.84 LT	12.0	
RD-13	12+020.000	14.93 LT	12+012.000	24.34 LT	12.35	
RD-13	12+027.000	15.17 LT	12+274.000	28.00 LT	252.36	
RD-14	12+528.000	14.76 LT	12+600.000	15.04 LT	72.0	
RD-15	12+600.000	15.04 LT	12+672.000	24.34 LT	81.12	
RD-15	12+679.000	15.04 LT	12+690.000	15.04 LT	11.0	
RD-15	12+696.000	24.34 LT	12+696.000	15.51 LT	8.83	
RD-15	12+696.000	15.51 LT	12+730.000	15.61 LT	34.0	
RD-15	12+742.000	24.34 LT	12+845.000	15.44 LT	111.9	
RD-15	12+855.000	23.13 LT	12+854.000	26.43 LT	3.45	
RD-16	12+930.000	24.34 LT	13+062.000	24.34 LT	144.4	
RD-17	13+471.000	33.00 LT	13+500.000	24.33 LT	30.27	
RD-18	13+500.000	24.33 LT	13+610.000	34.95 LT	133.38	
RD-18	13+655.000	13.85 LT	13+704.000	29.23 LT	62.59	
RD-18	13+711.000	29.23 LT	13+711.000	14.11 LT	15.12	
RD-18	13+783.000	11.77 LT	13+797.000	11.55 LT	14.0	

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Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-19	13+819.000	14.18 LT	13+898.000	14.05 LT	79.0	
RD-19	13+907.000	14.81 LT	13+926.000	14.87 LT	19.0	
RD-19	14+017.000	25.99 LT	14+032.000	31.34 LT	43.07	
RD-2	8+773.000	15.67 LT	8+789.000	19.30 LT	19.66	
RD-2	8+798.000	19.30 LT	8+806.000	21.37 LT	17.16	
RD-2	8+811.000	15.87 LT	8+839.000	15.68 LT	31.58	
RD-2	8+847.000	20.50 LT	8+870.000	15.79 LT	26.89	
RD-2	8+874.000	15.75 LT	8+929.000	20.50 LT	59.47	
RD-2	8+971.000	20.50 LT	8+985.000	20.50 LT	23.24	
RD-20	14+112.000	31.34 LT	14+331.000	20.81 LT	233.91	
RD-21	14+448.000	19.30 LT	14+448.000	16.66 LT	2.64	
RD-21	14+455.000	16.70 LT	14+501.000	16.13 LT	46.0	
RD-21	14+487.000	19.30 LT	14+488.000	16.49 LT	2.98	
RD-21	14+507.000	15.92 LT	14+514.000	16.91 LT	9.28	
RD-21	14+519.000	19.30 LT	14+553.000	19.30 LT	43.98	
RD-21	14+565.000	14.67 LT	14+611.000	17.87 LT	49.78	
RD-21	14+586.000	18.60 RT	14+700.000	12.06 RT	116.54	
RD-22	14+700.000	12.06 RT	14+900.000	15.48 RT	202.78	
RD-22	14+723.000	19.29 LT	14+739.000	19.29 LT	23.43	
RD-22	14+768.000	21.09 LT	14+769.000	17.25 LT	3.97	
RD-22	14+772.000	22.19 LT	14+829.000	16.12 LT	58.71	
RD-22	14+808.000	19.53 LT	14+809.000	16.88 LT	2.83	
RD-3	9+027.000	15.44 LT	9+027.000	19.30 LT	3.86	
RD-3	9+034.000	15.63 LT	9+125.000	15.47 LT	91.02	
RD-3	9+132.000	19.30 LT	9+147.000	21.56 LT	25.46	
RD-3	9+152.000	19.30 LT	9+165.000	15.27 LT	17.04	
RD-3	9+184.000	15.34 LT	9+204.000	15.30 LT	20.0	
RD-3	9+215.000	15.44 LT	9+300.000	14.79 LT	85.0	
RD-4	9+300.000	14.79 LT	9+311.000	14.70 LT	11.0	
RD-4	9+318.000	15.16 LT	9+410.000	19.25 LT	94.82	
RD-4	9+434.000	25.50 LT	9+600.000	16.10 LT	178.66	
RD-5	9+600.000	16.10 LT	9+900.000	15.56 LT	300.0	
RD-5	9+651.000	25.50 LT	9+657.000	15.72 LT	11.47	
RD-5	9+730.000	27.00 LT	9+732.000	15.23 LT	12.03	
RD-6	9+900.000	15.56 LT	10+200.000	15.37 LT	296.49	
RD-7	10+200.000	15.37 LT	10+299.000	31.00 LT	134.45	
RD-7	10+235.000	98.33 LT	10+299.000	31.00 LT	92.71	
RD-7	10+313.000	31.00 LT	10+500.000	15.01 LT	193.82	
RD-8	10+500.000	15.01 LT	10+800.000	15.03 LT	300.0	
RD-9	10+800.000	15.03 LT	11+100.000	14.41 LT	300.0	

5,639.36

**Detailed Report**  
**SP-0006(29)229**  
**SR-6; PRICE TO WELLINGTON**

**Version: 1**

**022210095 Remove Pipe Culvert**

381 m

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-1	8+652.000	20.88 RT	8+652.000	0.6 RT	20.28	
RD-10	11+117.080	16.72 LT	11+132.070	16.50 LT	15.0	
RD-10	11+193.000	18.80 LT	11+203.000	16.87 LT	10.18	
RD-12	11+712.000	13.20 LT	11+725.000	13.20 LT	13.0	
RD-13	12+015.000	10.67 LT	12+031.000	10.78 LT	16.0	
RD-13	12+039.260	9.97 LT	12+040.530	11.62 RT	21.63	
RD-15	12+730.000	16.55 LT	12+736.000	16.77 LT	6.0	
RD-18	13+607.000	9.00 LT	13+615.000	9.00 LT	8.0	
RD-18	13+699.270	7.41 LT	13+714.800	8.70 LT	15.58	
RD-19	14+051.000	12.18 LT	14+078.000	12.00 LT	27.0	
RD-19	14+073.000	9.20 LT	14+074.500	11.20 RT	20.4	
RD-21	14+608.000	12.25 LT	14+608.000	12.35 RT	24.6	
RD-21	14+647.000	12.66 LT	14+647.000	12.35 RT	25.01	
RD-4	9+406.090	11.75 LT	9+405.890	15.10 RT	26.85	
RD-4	9+408.180	13.28 LT	9+409.830	15.95 LT	3.14	
RD-5	9+637.420	10.97 LT	9+636.980	10.77 RT	21.74	
RD-6	9+962.969	11.27 RT	9+963.030	10.66 LT	21.93	
RD-7	10+315.000	15.50 LT	10+327.000	13.66 LT	12.14	
RD-7	10+342.480	11.17 RT	10+341.070	10.93 LT	22.14	
RD-8	10+609.040	11.01 RT	10+608.810	10.97 LT	21.98	
RD-8	10+697.000	16.74 LT	10+703.000	16.68 LT	6.0	
RD-9	10+883.440	11.28 RT	10+883.410	11.00 LT	22.28	
					<hr/> 380.88	

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**Version: 1**

**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description					Use Qty	Unit
<b>02221010*</b>	<b>Remove Mailbox</b>					27	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
RD-11	11+530.000	8.43 RT			1.0		
RD-13	12+027.000	8.54 RT			2.0	2 POST	
RD-13	12+256.000	8.72 RT			1.0		
RD-15	12+683.000	9.20 RT			3.0	3 POST	
RD-15	12+836.000	9.14 RT			1.0		
RD-16	13+140.000	9.08 RT			1.0		
RD-18	13+710.000	9.00 RT			1.0		
RD-19	13+910.000	6.86 LT			1.0		
RD-2	8+780.000	11.29 LT			4.0	4 POSTS	
RD-2	8+836.000	11.98 LT			1.0		
RD-2	8+913.000	8.99 LT			1.0		
RD-20	14+376.000	9.13 LT			1.0		
RD-3	9+011.000	10.07 LT			4.0	4 POSTS	
RD-3	9+135.000	11.59 LT			1.0		
RD-3	9+163.000	11.08 LT			1.0		
RD-3	9+216.000	12.28 LT			1.0		
RD-4	9+320.000	12.73 LT			1.0		
RD-7	10+375.000	8.14 RT			1.0		
					27.0		
<b>02221011*</b>	<b>Remove Right-of-Way Markers</b>					4	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
RD-13	12+102.000	15.06 LT			1.0		
RD-15	12+712.000	15.10 LT			1.0		
RD-21	14+492.000	11.91 RT			1.0		
RD-6	10+165.000	15.33 LT			1.0		
					4.0		
<b>02221012*</b>	<b>Remove Wall</b>					9	m
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
RD-2	8+736.000	8.80 LT	8+745.000	8.79 LT	9.0		
					9.0		

**Detailed Report**  
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Version: 1

**10 - ROADWAY**

Alt Group: 0 Alt #: 0

Item Number	Description					Use Qty	Unit
<b>022220005</b>	<b>Remove Concrete Sidewalk</b>					1,252	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
RD-21	14+448.000	13.49 LT	14+700.000	13.47 LT	383.7		
RD-21	14+568.000	27.34 RT	14+700.000	6.22 RT	257.1		
RD-22	14+700.000	13.47 LT	14+912.655	12.20 LT	288.4		
RD-22	14+700.000	6.22 RT	14+912.655	10.50 RT	322.4		
					1,251.6		
<b>022220010</b>	<b>Remove Concrete Driveway</b>					241	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
RD-21	14+451.000	16.35 LT	14+455.000	16.37 LT	10.22		
RD-21	14+501.000	15.81 LT	14+507.000	15.56 LT	13.71		
RD-21	14+515.000	15.43 LT	14+519.000	15.29 LT	11.9		
RD-21	14+558.000	14.34 LT	14+564.000	14.24 LT	17.03		
RD-21	14+622.000	14.69 LT	14+634.000	14.83 LT	29.62		
RD-21	14+653.000	15.00 LT	14+657.000	15.05 LT	12.66		
RD-21	14+670.000	15.04 LT	14+686.000	15.42 LT	34.62		
RD-21	14+693.000	15.50 LT	14+696.000	15.40 LT	10.39		
RD-22	14+715.000	15.75 LT	14+719.000	15.77 LT	12.24		
RD-22	14+742.000	16.05 LT	14+754.000	16.29 LT	29.63		
RD-22	14+769.000	16.37 LT	14+774.000	16.43 LT	12.73		
RD-22	14+833.000	15.49 LT	14+839.000	15.27 LT	15.61		
RD-22	14+902.000	11.49 LT			30.25	CENTER STA - HALF REMOVED	
					240.61		
<b>022220020</b>	<b>Remove Concrete Curb and Gutter</b>					804	m
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
RD-21	14+448.000	13.49 LT	14+700.000	13.47 LT	252.0		
RD-21	14+583.000	7.64 RT	14+700.000	6.22 RT	117.31		
RD-22	14+700.000	13.47 LT	14+912.655	12.20 LT	221.96		
RD-22	14+700.000	6.22 RT	14+912.655	10.5 RT	212.7		
					803.97		

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Version: 1

10 - ROADWAY

Alt Group: 0 Alt #: 0

Item Number	Description				Use Qty	Unit
<b>022220040</b>	<b>Remove Asphalt Pavement</b>				41,500	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-1	8+500.000	10.50 LT	8+700.000	6.00 LT	215.04	
RD-1	8+500.000	7.50 RT	8+700.000	6.00 RT	740.75	
RD-10	11+100.000	4.00 LT	11+400.000	4.00 LT	624.95	INCLUDES DRIVEWAY
RD-10	11+100.000	4.00 RT	11+400.000	4.00 RT	493.68	
RD-11	11+400.000	4.00 LT	11+700.000	4.00 LT	478.36	INCLUDES DRIVEWAY
RD-11	11+400.000	4.00 RT	11+700.000	4.00 RT	552.16	
RD-12	11+700.000	4.00 LT	12+000.000	4.00 LT	602.34	INCLUDES DRIVEWAY
RD-12	11+700.000	4.00 RT	12+000.000	4.00 RT	428.08	
RD-13	12+000.000	4.00 LT	12+300.000	4.00 LT	707.37	INCLUDES DRIVEWAY
RD-13	12+000.000	4.00 RT	12+300.000	4.00 RT	372.95	
RD-14	12+300.000	4.00 LT	12+600.000	4.00 LT	468.84	
RD-14	12+300.000	4.00 RT	12+600.000	4.00 RT	481.81	
RD-15	12+600.000	4.00 LT	12+900.000	4.00 LT	511.95	INCLUDES DRIVEWAY
RD-15	12+600.000	4.00 RT	12+900.000	4.00 RT	551.04	
RD-16	12+900.000	4.00 LT	13+200.000	4.00 LT	322.97	
RD-16	12+900.000	4.00 RT	13+200.000	4.00 RT	581.63	
RD-17	13+200.000	4.00 LT	13+500.000	LT	1,863.25	INCLUDES 3540 SOUTH
RD-17	13+200.000	4.00 RT	13+500.000	RT	1,589.55	
RD-18	13+500.000		13+800.000		3,050.68	
RD-19	13+800.000		14+100.000		3,283.95	INCLUDES DRIVEWAY
RD-2	8+700.000	6.00 LT	9+000.000	6.00 LT	1,020.05	INCLUDES DRIVEWAYS
RD-2	8+700.000	6.00 RT	9+000.000	6.00 RT	485.65	
RD-20	14+100.000		14+400.000		3,096.55	
RD-21	14+400.000		14+700.000		5,471.69	INCLUDES DRIVEWAY
RD-22	14+700.000		14+912.655		4,267.77	INCLUDES DRIVEWAY
RD-3	9+000.000	6.00 LT	9+300.000	6.00 LT	1,009.85	
RD-3	9+000.000	6.00 RT	9+300.000	6.00 RT	730.37	INCLUDES PRIVATE ROAD
RD-4	9+300.000	6.00 LT	9+600.000	4.00 LT	1,312.76	INCLUDES OLD WELLINGTON RD
RD-4	9+300.000	6.00 RT	9+600.000	4.00 RT	806.13	INCLUDES 1620 EAST
RD-5	9+600.000	4.00 LT	9+900.000	4.00 LT	460.46	
RD-5	9+600.000	4.00 RT	9+900.000	4.00 RT	438.71	
RD-6	9+900.000	4.00 LT	10+200.000	4.00 LT	460.11	
RD-6	9+900.000	4.00 RT	10+200.000	4.00 RT	437.33	
RD-7	10+200.000	4.00 LT	10+500.000	4.00 LT	447.98	
RD-7	10+200.000	4.00 RT	10+500.000	4.00 RT	445.66	
RD-7	10+238.800	102.20 LT	10+323.600	12.00 LT	874.36	2000 EAST
RD-8	10+500.000	4.00 LT	10+800.000	4.00 LT	433.25	

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Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-8	10+500.000	4.00 RT	10+800.000	4.00 RT	462.09	
RD-9	10+800.000	4.00 LT	11+100.000	4.00 LT	448.32	
RD-9	10+800.000	4.00 RT	11+100.000	4.00 RT	469.4	
					<hr/> 41,499.84	

#### 022310010 Clearing and Grubbing

1 Lump

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
					1.0	Wetland Mitigation Site Only
					<hr/> 1.0	

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**Version: 1**

**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>023160020</b>	<b>Roadway Excavation (Plan Quantity)</b>				110,000	m3
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DT-0	MITIGATION				3,614.0	Wetland Mitigation Site
RD-1	8+500.000		8+700.000		2,420.0	371 FILL, 2049 NET
RD-10	11+100.000		11+400.000		4,233.0	71 FILL, 4162 NET
RD-11	11+400.000		11+700.000		2,993.0	3035 FILL, -42 NET
RD-12	11+700.000		12+000.000		3,650.0	1451 FILL, 2199 NET
RD-13	12+000.000		12+300.000		4,437.0	1566 FILL, 2871 NET
RD-14	12+300.000		12+600.000		3,210.0	1158 FILL, 2052 NET
RD-15	12+600.000		12+900.000		3,456.0	280 FILL, 3176 NET
RD-16	12+900.000		13+200.000		3,692.0	1031 FILL, 2661 NET
RD-17	13+200.000		13+500.000		2,178.0	7364 FILL, -5186 NET
RD-18	13+500.000		13+800.000		14,366.0	1165 FILL, 13201 NET
RD-19	13+800.000		14+100.000		2,090.0	7573 FILL, -5483 NET
RD-2	8+700.000		9+000.000		4,951.0	1578 FILL, 3373 NET
RD-20	14+100.000		14+400.000		17,548.0	151 FILL, 17397 NET
RD-21	14+400.000		14+700.000		3,140.0	1121 FILL, 2019 NET
RD-22	14+700.000		14+912.655		1,852.0	656 FILL, 1196 NET
RD-3	9+000.000		9+300.000		3,011.0	404 FILL, 2607 NET
RD-4	9+300.000		9+600.000		4,426.0	409 FILL, 4016 NET
RD-5	9+600.000		9+900.000		4,810.0	132 FILL, 4678 NET
RD-6	9+900.000		10+200.000		1,560.0	304 FILL, 4856 NET
RD-7	10+200.000		10+500.000		4,122.0	5 FILL, 4117 NET
RD-7	2+000.000		2+099.086		366.0	12 FILL, 354 NET 2000 East only
RD-8	10+500.000		10+800.000		4,469.0	1 FILL, 4468 NET
RD-9	10+800.000		11+100.000		4,155.0	28 FILL, 4127 NET
					104,749.0	



**Detailed Report**  
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**Version: 1**

**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number		Description				Use Qty	Unit
023180010		Small Ditch Excavation				3,400	m3
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
DR-10	11+100.000	25.0 LT	11+110.000	21.05 LT	20.0		
DR-10	11+204.000	24.5 LT	11+400.000	22.0 LT	392.0		
DR-10	11+249.300	24.4 LT	11+249.300	20.31 LT	9.0		
DR-11	11+400.000	22.0 LT	11+460.000	22.0 LT	120.0		
DR-19	13+850.460	28.59 RT	14+067.410	19.95 RT	434.0		
DR-20	14+340.000	22.00 RT	14+368.000	29.15 RT	56.0		
DR-6	9+921.600	25.0 LT	10+200.000	25.0 LT	556.8		
DR-7	10+200.000	25.0 LT	10+262.260	25.0 LT	124.52		
DR-7	10+278.360	25.0 LT	10+500.000	25.0 LT	443.28		
DR-8	10+500.000	25.0 LT	10+800.000	25.0 LT	600.0		
DR-9	10+800.000	25.0 LT	11+100.000	25.0 LT	600.0		
DR-9	10+867.620	25.0 LT	10+872.950	20.1 LT	12.0		
					3,367.6		
Note #	Note						
1	Assume ditch is 1 m deep						

<b>023730010</b>	<b>Loose Riprap</b>					41	m3
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
DR-19	13+860.710	28.53 RT	13+870.000	28.8 RT	5.0		
DR-19	14+055.000	19.3 LT	14+052.000	20.1 LT	1.6		
DR-20	14+365.560	23.86 RT	14+368.000	29.15 RT	3.0		
DT-13	11+623.100	20.7 LT	11+648.000	26.6 LT	11.55		
DT-13	11+662.900	24.1 LT	11+694.000	15.8 LT	14.71		
DT-13	8+728.600	21.0 LT	8+734.900	28.3 LT	4.32		
					40.18		

<b>02610000*</b>	<b>Plug Pipe</b>					2	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
DR-13	12+131.610	10.62 LT			1.0		
DR-13	12+131.630	12.33 RT			1.0		
					2.0		

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**Version: 1**

**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>026100004</b>	<b>450 mm Pipe Culvert Class A</b>				748	m
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DR-10	11+113.900	21.1 LT	11+133.800	21.1 LT	13.0	
DR-11	11+440.500	18.00 LT	11+450.300	18.00 LT	9.8	
DR-11	11+475.800	17.7 LT	11+545.000	16.5 LT	69.21	
DR-11	11+587.000	18.00 LT	11+594.000	18.00 LT	7.0	
DR-12	11+726.100	15.3 LT	11+733.900	14.7 LT	7.82	
DR-12	11+756.500	14.9 LT	11+763.300	15.2 LT	6.81	
DR-12	11+989.000	18.00 LT	11+997.000	18.00 LT	8.0	
DR-13	12+006.600	18.00 LT	12+021.100	18.00 LT	14.5	
DR-13	12+211.760	18.00 LT	12+219.800	18.00 LT	8.0	
DR-13	12+259.500	18.00 LT	12+279.200	18.00 LT	19.7	
DR-14	12+478.500	18.00 LT	12+487.600	18.00 LT	9.1	
DR-15	12+671.600	18.00 LT	12+680.200	18.00 LT	8.6	
DR-15	12+689.100	18.00 LT	12+696.400	18.00 LT	7.3	
DR-15	12+729.700	18.00 LT	12+735.500	18.00 LT	5.8	
DR-15	12+844.700	18.00 LT	12+864.700	18.00 LT	20.0	
DR-16	13+041.000	18.00 LT	13+047.300	18.3 LT	6.31	
DR-16	13+125.100	18.00 LT	13+132.900	18.00 LT	7.8	
DR-18	13+607.500	18.00 LT	13+616.400	18.00 LT	8.9	
DR-18	13+702.200	18.00 LT	13+712.100	18.00 LT	9.9	
DR-18	13+765.170	18.07 LT	13+772.370	18.08 LT	7.2	
DR-19	13+908.600	22.97 LT	13+917.700	22.09 LT	9.14	
DR-19	14+014.100	17.0 LT	14+034.800	17.0 LT	20.7	
DR-19	14+034.800	17.0 LT	14+040.000	20.0 LT	7.0	
DR-19	14+054.300	20.1 LT	14+065.300	20.1 LT	11.0	
DR-2	8+836.000	12.22 LT	8+836.000	21.9 RT	34.12	
DR-2	8+913.000	12.22 LT	8+913.000	20.50 RT	32.72	
DR-2	8+913.000	17.2 LT	8+913.000	12.22 LT	4.98	
DR-20	14+123.200	19.92 LT	14+130.100	19.75 LT	7.0	
DR-21	14+480.000	21.70 RT	14+480.000	17.24 LT	38.94	
DR-21	14+608.000	12.22 RT	14+608.000	12.22 LT	24.44	
DR-21	14+608.000	30.20 RT	14+608.000	12.22 RT	17.98	
DR-21	14+608.000	12.22 RT	14+700.000	12.22 RT	92.0	
DR-22	14+735.000	12.22 RT	14+700.000	12.22 LT	35.0	
DR-22	14+735.000	12.22 RT	14+735.000	12.22 LT	24.44	
DR-3	9+054.700	18.8 RT	9+077.400	18.5 RT	22.7	
DR-4	9+375.550	21.88 RT	9+416.700	22.00 RT	41.15	
DR-7	10+258.100	18.3 LT	10+281.420	18.30 LT	23.32	

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## SR-6; PRICE TO WELLINGTON

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DR-7	10+262.260	25.00 LT	10+278.360	25.00 LT	16.1	
DR-7	10+379.120	18.00 LT	10+386.420	18.00 LT	7.3	
DR-7	10+379.120	25.01 LT	10+386.420	25.01 LT	7.3	
DR-8	10+687.780	25.01 LT	10+695.300	25.01 LT	7.6	
DR-8	10+691.840	18.00 LT	10+699.360	18.00 LT	7.6	
					<hr/> 747.28	

### 026100006 600 mm Pipe Culvert Class A

285 m

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DR-13	12+038.760	18.00 LT	12+041.400	26.55 RT	44.63	
DR-19	14+067.410	19.57 LT	14+067.410	19.95 RT	40.0	
DR-20	14+340.000	18.00 LT	14+340.000	22.0 RT	40.0	
DR-4	4+416.810	24.69 RT	9+416.700	22.00 RT	2.69	
DR-6	9+963.000	18.00 LT	9+963.000	18.20 RT	36.2	
DR-7	10+341.000	18.15 LT	10+342.820	18.76 RT	36.95	
DR-8	10+609.000	18.00 LT	10+609.000	25.00 RT	43.0	
DR-9	10+872.950	20.08 LT	10+885.980	18.34 RT	41.15	
					<hr/> 284.62	

### 026100048 600 mm Corrugated Steel Pipe Culvert Class A

68 m

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DR-12	11+841.940	13.68 LT	11+841.520	19.00 LT	5.34	
DR-12	11+848.550	14.24 RT	11+851.410	24.54 RT	10.69	
DR-18	13+558.330	12.00 LT	13+558.330	18.00 LT	6.0	
DR-18	13+559.130	14.88 RT	13+559.300	19.56 RT	4.68	
DR-4	9+406.100	12.22 LT	9+416.700	22.00 RT	35.82	
DR-4	9+409.830	15.95 LT	9+406.100	12.22 LT	5.28	
					<hr/> 67.81	

### 026100052 900 mm Corrugated Steel Pipe Culvert Class A

22 m

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DR-19	13+850.110	16.71 RT	13+850.110	26.18 RT	9.47	
DR-19	13+850.990	12.02 LT	13+850.990	24.40 LT	12.38	
					<hr/> 21.85	

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**Version: 1**

**10 - ROADWAY**      **Alt Group: 0**    **Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>02610009*</b>	<b>1800 mm x 1200 mm Corrugated Steel Pipe Arch Culvert Class A</b>				8	m
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DR-17	13+312.080	15.26 LT	13+312.080	18.00 LT	2.74	
DR-17	13+312.090	23.30 RT	13+312.190	28.16 RT	4.86	
					7.6	
<b>026100170</b>	<b>600 mm Smooth Lined Pipe Culvert Class A</b>				148	m
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DR-2	8+742.660	20.36 RT	8+836.000	18.90 RT	93.35	
DR-2	8+836.000	18.90 RT	8+890.000	20.85 RT	54.04	
					147.39	
<b>026100414</b>	<b>600 mm Reinforced Concrete Pipe Culvert Class B</b>				52	m
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DR-14	12+454.290	11.76 LT	12+454.210	18.00 LT	6.24	
DR-14	12+454.580	11.89 RT	12+454.730	19.88 RT	7.99	
DR-16	13+020.270	10.67 LT	13+020.000	18.00 LT	7.33	
DR-16	13+020.580	11.73 RT	13+020.730	22.83 RT	11.1	
DR-17	13+443.200	14.58 RT	13+443.200	27.77 RT	13.19	
DR-17	13+443.990	13.41 LT	13+443.990	19.55 LT	6.14	
					51.99	
<b>026100418</b>	<b>900 mm Reinforced Concrete Pipe Culvert Class B</b>				16	m
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DR-10	11+249.560	11.96 LT	11+249.300	20.31 LT	8.35	
DR-10	11+250.010	12.04 RT	11+250.160	18.92 RT	6.88	
					15.23	

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**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>026130030</b>	<b>Culvert End Sections 450 mm</b>				69	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DR-10	11+113.900	21.1 LT			1.0	
DR-10	11+133.800	21.1 LT			1.0	
DR-11	11+440.500	18.00 LT			1.0	
DR-11	11+450.300	18.00 LT			1.0	
DR-11	11+475.800	17.7 LT			1.0	
DR-11	11+545.000	16.5 LT			1.0	
DR-11	11+587.000	18.00 LT			1.0	
DR-11	11+594.000	18.00 LT			1.0	
DR-12	11+726.100	15.3 LT			1.0	
DR-12	11+733.900	14.7 LT			1.0	
DR-12	11+756.500	14.9 LT			1.0	
DR-12	11+763.300	15.2 LT			1.0	
DR-12	11+989.000	18.00 LT			1.0	
DR-12	11+997.000	18.00 LT			1.0	
DR-13	12+006.600	18.00 LT			1.0	
DR-13	12+021.100	18.00 LT			1.0	
DR-13	12+211.760	18.00 LT			1.0	
DR-13	12+219.800	18.00 LT			1.0	
DR-13	12+259.500	18.00 LT			1.0	
DR-13	12+279.200	18.00 LT			1.0	
DR-14	12+478.500	18.00 LT			1.0	
DR-14	12+487.600	18.00 LT			1.0	
DR-15	12+671.600	18.00 LT			1.0	
DR-15	12+680.200	18.00 LT			1.0	
DR-15	12+689.100	18.00 LT			1.0	
DR-15	12+696.400	18.00 LT			1.0	
DR-15	12+729.700	18.00 LT			1.0	
DR-15	12+735.500	18.00 LT			1.0	
DR-15	12+844.700	18.00 LT			1.0	
DR-15	12+864.700	18.00 LT			1.0	
DR-16	13+041.000	18.00 LT			1.0	
DR-16	13+047.300	18.30 LT			1.0	
DR-16	13+125.100	18.00 LT			1.0	
DR-16	13+132.900	18.00 LT			1.0	
DR-18	13+607.500	18.00 LT			1.0	
DR-18	13+616.400	18.00 LT			1.0	
DR-18	13+702.200	18.00 LT			1.0	

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Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DR-18	13+712.100	18.00 LT			1.0	
DR-18	13+765.170	18.07 LT			1.0	
DR-18	13+772.370	18.08 LT			1.0	
DR-19	13+895.300	23.86 LT			1.0	
DR-19	13+904.500	23.37 LT			1.0	
DR-19	14+014.100	17.0 LT			1.0	
DR-19	14+040.000	20.0 LT			1.0	
DR-19	14+054.300	20.1 LT			1.0	
DR-19	14+065.300	20.1 LT			1.0	
DR-2	8+913.000	17.2 LT			1.0	
DR-2	8+913.000	20.50 RT			1.0	
DR-20	14+123.200	19.92 LT			1.0	
DR-20	14+130.100	19.75 LT			1.0	
DR-21	14+480.000	21.70 RT			1.0	
DR-21	14+608.000	12.22 RT			1.0	
DR-22	14+735.000	20.30 RT			1.0	
DR-22	14+825.000	21.50 RT			1.0	
DR-3	9+054.700	18.8 RT			1.0	
DR-3	9+077.400	18.5 RT			1.0	
DR-4	9+375.550	21.88 RT			1.0	
DR-7	10+258.100	18.3 LT			1.0	
DR-7	10+262.260	25.0 LT			1.0	
DR-7	10+278.360	25.0 LT			1.0	
DR-7	10+281.420	18.3 LT			1.0	
DR-7	10+379.120	18.00 LT			1.0	
DR-7	10+379.120	25.01 LT			1.0	
DR-7	10+386.420	18.00 LT			1.0	
DR-7	10+386.420	25.01 LT			1.0	
DR-8	10+687.780	25.01 LT			1.0	
DR-8	10+691.840	18.00 LT			1.0	
DR-8	10+695.300	25.01 LT			1.0	
DR-8	10+699.360	18.00 LT			1.0	
					<hr/> 69.0	

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**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>026130040</b>	<b>Culvert End Sections 600 mm</b>				<b>23</b>	<b>Each</b>
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DR-12	11+841.520	19.0 LT			1.0	
DR-12	11+851.410	24.54 RT			1.0	
DR-13	12+038.760	18.35 LT			1.0	
DR-13	12+041.000	26.55 RT			1.0	
DR-14	12+454.210	18.00 LT			1.0	
DR-14	12+454.730	19.88 RT			1.0	
DR-16	13+020.000	18.00 LT			1.0	
DR-16	13+020.730	22.83 RT			1.0	
DR-17	13+443.200	27.77 RT			1.0	
DR-17	13+443.990	19.55 LT			1.0	
DR-18	13+558.330	18.00 LT			1.0	
DR-18	13+559.300	19.56 RT			1.0	
DR-2	8+890.000	20.85 RT			1.0	
DR-20	14+340.000	18.00 LT			1.0	
DR-20	14+340.000	22.0 RT			1.0	
DR-6	9+963.000	18.20 RT			1.0	
DR-6	9+963.000	18.35 LT			1.0	
DR-7	10+341.000	18.15 LT			1.0	
DR-7	10+342.820	18.76 RT			1.0	
DR-8	10+609.000	18.00 LT			1.0	
DR-8	10+609.000	25.0 RT			1.0	
DR-9	10+883.000	18.5 RT			1.0	
DR-9	10+883.000	20.3 LT			1.0	
					<hr/>	
					23.0	
<b>026130060</b>	<b>Culvert End Sections 900 mm</b>				<b>4</b>	<b>Each</b>
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DR-10	11+249.300	20.31 LT			1.0	
DR-10	11+250.260	23.80 RT			1.0	
DR-19	13+850.110	26.18 RT			1.0	
DR-19	13+850.990	24.40 LT			1.0	
					<hr/>	
					4.0	

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Item Number	Description					Use Qty	Unit
026140040	Salvage and Relay Culvert End Section					2	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
DR-17	13+312.080	18.00	LT		1.0		
DR-17	13+312.190	28.2	RT		1.0		
					2.0		
026350035	Rectangular Grate and Frame (Standard Grating), Std Dwg 1703					4	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
DR-2	8+836.000	18.90	RT		1.0		
DR-21	14+480.000	17.24	LT		1.0		
DR-4	9+409.830	15.95	LT		1.0		
DR-4	9+416.700	22.00	RT		1.0		
					4.0		
026350040	Rectangular Grate And Frame (Bicycle Safe Grating), Std Dwg 1703					8	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
DR-2	8+836.000	12.22	LT		1.0		
DR-2	8+913.000	12.22	LT		1.0		
DR-21	14+480.000	12.22	LT		1.0		
DR-21	14+608.000	12.22	LT		1.0		
DR-21	14+608.000	12.22	RT		1.0		
DR-22	14+735.000	12.22	LT		1.0		
DR-22	14+735.000	12.22	RT		1.0		
DR-4	9+406.100	12.22	LT		1.0		
					8.0		



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**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>027050010</b>	<b>Asphalt Pavement Sawing</b>				2,388,000	mm•m
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-1	8+500.000	10.80 LT	8+700.000	5.40 LT	51,080.0	250mm depth
RD-1	8+500.000	12.10 RT	8+700.000	5.40 RT	52,026.0	250mm depth
RD-10	11+100.000	3.60 LT	11+400.000	3.60 LT	75,649.0	250mm depth, drives at 100mm depth
RD-10	11+100.000	3.60 RT	11+400.000	3.60 RT	75,000.0	250mm depth
RD-11	11+400.000	3.60 LT	11+700.000	3.60 LT	75,265.0	250mm depth, drives at 100mm depth
RD-11	11+400.000	3.60 RT	11+700.000	3.60 RT	75,000.0	250mm depth
RD-12	11+700.000	3.60 LT	12+000.000	3.60 LT	75,741.0	250mm depth, drives at 100mm depth
RD-12	11+700.000	3.60 RT	12+000.000	3.60 RT	75,000.0	250mm depth
RD-13	12+000.000	3.60 LT	12+300.000	3.60 LT	75,600.0	250mm depth, drives at 100mm depth
RD-13	12+000.000	3.60 RT	12+300.000	3.60 RT	75,000.0	250mm depth
RD-14	12+300.000	3.60 LT	12+600.000	3.60 LT	75,000.0	250mm depth
RD-14	12+300.000	3.60 RT	12+600.000	3.60 RT	75,000.0	250mm depth
RD-15	12+600.000	3.60 LT	12+900.000	3.60 LT	75,734.0	250mm depth, drives at 100mm depth
RD-15	12+600.000	3.60 RT	12+900.000	3.60 RT	75,000.0	250mm depth
RD-16	12+900.000	3.60 LT	13+200.000	3.60 LT	75,000.0	250mm depth
RD-16	12+900.000	3.60 RT	13+200.000	3.60 RT	75,000.0	250mm depth
RD-17	13+200.000	3.60 LT	13+205.460	3.60 LT	1,365.0	250mm depth
RD-17	13+200.000	3.60 RT	13+205.460	3.60 RT	3,165.0	250mm depth
RD-17	13+405.428	42.79 LT	13+413.692	40.45 LT	2,148.0	3450 SOUTH
RD-19	14+060.000	LT			734.0	100 mm depth driveway
RD-2	8+700.000	5.40 LT	9+000.000	5.40 LT	76,744.0	250mm depth, drives at 100mm depth
RD-2	8+700.000	5.40 RT	9+000.000	5.40 RT	75,000.0	250mm depth
RD-21	14+504.000	LT			576.0	100 mm depth driveway
RD-21	14+573.136	29.61 RT	14+581.091	28.46 RT	2,010.0	400 WEST
RD-22	14+846.211	23.21 LT	14+857.830	25.77 LT	2,843.0	200 WEST
RD-22	14+912.655	11.50 LT	14+912.655	9.72 RT	6,001.0	250mm depth, drives at 100mm depth
RD-3	9+000.000	5.40 LT	9+300.000	5.40 LT	77,073.0	250mm depth, drives at 100mm depth
RD-3	9+000.000	5.40 RT	9+300.000	5.40 RT	76,599.0	250mm depth
RD-4	9+300.000	5.40 LT	9+600.000	3.60 LT	75,857.0	250mm depth, drives at 100mm depth
RD-4	9+300.000	5.40 RT	9+600.000	3.60 RT	78,024.0	250mm depth
RD-4	9+422.000	28.35 LT	9+430.000	25.11 LT	2,102.0	OLD WELLINGTON RD
RD-5	9+600.000	3.60 LT	9+900.000	3.60 LT	74,913.0	250mm depth
RD-5	9+600.000	3.60 RT	9+900.000	3.60 RT	75,078.0	250mm depth
RD-6	9+900.000	3.60 LT	10+200.000	3.60 LT	74,796.0	250mm depth
RD-6	9+900.000	3.60 RT	10+200.000	3.60 RT	75,204.0	250mm depth
RD-7	10+200.000	3.60 LT	10+500.000	3.60 LT	75,000.0	250mm depth
RD-7	10+200.000	3.60 RT	10+500.000	3.60 RT	75,000.0	250mm depth

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Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-7	10+236.828	100.10 LT	10+241.218	104.44 LT	1,545.0	2000 EAST
RD-8	10+500.000	3.60 LT	10+800.000	3.60 LT	75,000.0	250mm depth
RD-8	10+500.000	3.60 RT	10+800.000	3.60 RT	75,000.0	250mm depth
RD-9	10+800.000	3.60 LT	11+100.000	3.60 LT	75,000.0	250mm depth
RD-9	10+800.000	3.60 RT	11+100.000	3.60 RT	75,000.0	250mm depth
					<hr/> 2,387,872.0	

Note # Note

- 1 Average depth of 250 mm based on several boring logs averaged together.

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**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>02721007P</b>	<b>Untreated Base Course 19 mm or 25 mm Max</b>				28,000	m3
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-1	8+500.000		8+700.000		568.0	
RD-10	11+100.000		11+400.000		1,189.0	
RD-11	11+400.000		11+700.000		1,197.0	
RD-12	11+700.000		12+000.000		1,171.0	
RD-13	12+000.000		12+300.000		1,202.0	
RD-14	12+300.000		12+600.000		1,159.0	
RD-15	12+600.000		12+900.000		1,203.0	
RD-16	12+900.000		13+200.000		1,170.0	
RD-17	13+200.000		13+500.000		1,628.0	
RD-18	13+500.000		13+800.000		1,613.0	
RD-19	13+800.000		14+100.000		1,621.0	
RD-2	8+700.000		9+000.000		957.0	
RD-20	14+100.000		14+400.000		1,594.0	
RD-21	14+400.000		14+700.000		1,589.0	
RD-22	14+700.000		14+912.655		1,088.0	
RD-3	9+000.000		9+300.000		943.0	
RD-4	9+300.000		9+600.000		1,008.0	
RD-5	9+600.000		9+900.000		1,153.0	
RD-6	9+900.000		10+200.000		1,153.0	
RD-7	10+200.000		10+500.000		1,168.0	
RD-7	2+000.000		2+099.086		144.0	2000 East
RD-8	10+500.000		10+800.000		1,167.0	
RD-9	10+800.000		11+100.000		1,153.0	
					<hr/> 26,838.0	

Note # Note

1 Driveway quantites are included in the individual sheet quantities

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**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>027410020</b>	<b>HMA - 19.0 mm</b>				69,000	Mg
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-1	8+500.000		8+700.000		2,576.0	
RD-10	11+100.000		11+400.000		3,007.0	
RD-11	11+400.000		11+700.000		2,999.0	
RD-12	11+700.000		12+000.000		2,994.0	
RD-13	12+000.000		12+300.000		3,006.0	
RD-14	12+300.000		12+600.000		2,986.0	
RD-15	12+600.000		12+900.000		3,002.0	
RD-16	12+900.000		13+200.000		2,991.0	
RD-17	13+200.000		13+500.000		3,497.0	
RD-18	13+500.000		13+800.000		3,346.0	
RD-19	13+800.000		14+100.000		3,353.0	
RD-2	8+700.000		9+000.000		2,787.0	
RD-20	14+100.000		14+400.000		3,326.0	
RD-21	14+400.000		14+700.000		3,367.0	
RD-22	14+700.000		14+912.655		2,288.0	
RD-3	9+000.000		9+300.000		2,797.0	
RD-4	9+300.000		9+600.000		3,594.0	
RD-5	9+600.000		9+900.000		3,491.0	
RD-6	9+900.000		10+200.000		3,524.0	
RD-7	10+200.000		10+500.000		2,974.0	
RD-7	2+000.000		2+099.086		333.0	2000 East
RD-8	10+500.000		10+800.000		2,986.0	
RD-9	10+800.000		11+100.000		2,986.0	
					68,210.0	

Note # Note

- 1 Assume 2.310 MG/m3 of HMA - 19.0 mm  
 Driveway quantities are included in the individual sheet quantities

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**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>027480030</b>	<b>Emulsified Asphalt SS-1</b>				102	Mg
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-1	8+500.000		8+700.000		3.1	
RD-10	11+100.000		11+400.000		4.7	
RD-11	11+400.000		11+700.000		4.7	
RD-12	11+700.000		12+000.000		4.7	
RD-13	12+000.000		12+300.000		4.7	
RD-14	12+300.000		12+600.000		4.7	
RD-15	12+600.000		12+900.000		4.7	
RD-16	12+900.000		13+200.000		4.7	
RD-17	13+200.000		13+500.000		5.01	
RD-18	13+500.000		13+800.000		4.7	
RD-19	13+800.000		14+100.000		4.79	
RD-2	8+700.000		9+000.000		4.69	
RD-20	14+100.000		14+400.000		4.7	
RD-21	14+400.000		14+700.000		4.95	
RD-22	14+700.000		14+912.655		3.4	
RD-3	9+000.000		9+300.000		4.78	
RD-4	9+300.000		9+600.000		4.93	
RD-5	9+600.000		9+900.000		4.7	
RD-6	9+900.000		10+200.000		4.7	
RD-7	10+200.000		10+500.000		4.7	
RD-7	2+000.000		2+099.086		0.49	2000 East
RD-8	10+500.000		10+800.000		4.7	
RD-9	10+800.000		11+100.000		4.7	
					101.94	

Note # Note

1 Assume 0.40 L/m2, 1001 L/MG of Emulsified Asphalt SS-1

**Detailed Report**  
**SP-0006(29)229**  
**SR-6; PRICE TO WELLINGTON**

**Version: 1**

**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>027490010</b>	<b>Asphalt Concrete Driveway</b>				43	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
	10+382.8				1.0	
	10+695.6				1.0	
	11+116.3				1.0	
	11+127.5				1.0	
	11+445.4				1.0	
	11+532.0				1.0	
	11+591.0				1.0	
	11+730.0				1.0	
	11+759.9				1.0	
	11+993.0				1.0	
	12+010.2				1.0	
	12+018.7				1.0	
	12+215.8				1.0	
	12+269.0				1.0	
	12+483.0				1.0	
	12+676.1				1.0	
	12+693.0				1.0	
	12+732.4				1.0	
	12+847.9				1.0	
	12+860.0				1.0	
	13+044.6				1.0	
	13+129.0				1.0	
	13+612.0				1.0	
	13+707.1				1.0	
	13+768.0				1.0	
	13+913				1.0	
	14+024.0				1.0	
	14+126.6				1.0	
	14+387.0				1.0	
	14+398.2				1.0	
	14+504.0				1.0	
	14+744.0				1.0	
	14+902.0				1.0	
	8+794.6				1.0	
	8+844.6				1.0	
	8+875.0				1.0	
	8+965.0				1.0	

## Detailed Report

SP-0006(29)229

Version: 1

### SR-6; PRICE TO WELLINGTON

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
	8+989.0				1.0	
	9+129.0				1.0	
	9+149.0				1.0	
	9+207.0				1.0	
	9+314.0				1.0	
	11+505.5				1.0	
					<hr/>	
					43.0	

**Detailed Report**  
**SP-0006(29)229**  
**SR-6; PRICE TO WELLINGTON**

Version: 1

10 - ROADWAY

Alt Group: 0 Alt #: 0

Item Number	Description				Use Qty	Unit
<b>027650005</b>	<b>Traffic Striping Paint</b>				1,309	L
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
	BEYOND LIM				0.41	100mm SKIP WHITE
	BEYOND LIM				0.54	100mm SOLID WHITE
SS-1	8+500.000	5.32 LT	8+588.000	5.40 LT	6.81	200mm SOLID WHITE
SS-1	8+500.000	6.02 LT	8+588.000	5.40 LT	6.81	200mm SOLID WHITE
SS-1	8+500.000	1.28 LT	8+700.000	1.70 LT	2.07	100mm SKIP YELLOW
SS-1	8+500.000	1.38 LT	8+700.000	1.80 LT	7.98	100mm SOLID YELLOW
SS-1	8+500.000	1.44 RT	8+700.000	1.70 RT	2.07	100mm SKIP YELLOW
SS-1	8+500.000	1.54 RT	8+700.000	1.80 RT	8.01	100mm SOLID YELLOW
SS-1	8+500.000	10.07 RT	8+700.000	9.00 RT	8.07	100mm SOLID WHITE
SS-1	8+500.000	5.42 RT	8+700.000	5.40 RT	2.08	100mm SKIP WHITE
SS-1	8+500.000	9.64 LT	8+700.000	9.00 LT	7.93	100mm SOLID WHITE
SS-1	8+588.000	5.40 LT	8+687.000	5.40 LT	1.91	200mm LANE DROP WHITE
SS-1	8+687.000	5.40 LT	8+700.000	5.40 LT	0.13	100mm SKIP WHITE
SS-10	11+100.000	1.70 LT	11+400.000	1.70 LT	3.11	100mm SKIP YELLOW
SS-10	11+100.000	1.70 RT	11+400.000	1.70 RT	3.11	100mm SKIP YELLOW
SS-10	11+100.000	1.80 LT	11+400.000	1.80 LT	12.0	100mm SOLID YELLOW
SS-10	11+100.000	1.80 RT	11+400.000	1.80 RT	12.0	100mm SOLID YELLOW
SS-10	11+100.000	5.40 LT	11+400.000	5.40 LT	3.11	100mm SKIP WHITE
SS-10	11+100.000	5.40 RT	11+400.000	5.40 RT	3.11	100mm SKIP WHITE
SS-10	11+100.000	9.00 LT	11+400.000	9.00 LT	12.0	100mm SOLID WHITE
SS-10	11+100.000	9.00 RT	11+400.000	9.00 RT	12.0	100mm SOLID WHITE
SS-11	11+400.000	1.70 LT	11+700.000	1.70 LT	3.11	100mm SKIP YELLOW
SS-11	11+400.000	1.70 RT	11+700.000	1.70 RT	3.11	100mm SKIP YELLOW
SS-11	11+400.000	1.80 LT	11+700.000	1.80 LT	12.0	100mm SOLID YELLOW
SS-11	11+400.000	1.80 RT	11+700.000	1.80 RT	12.0	100mm SOLID YELLOW
SS-11	11+400.000	5.40 LT	11+700.000	5.40 LT	3.11	100mm SKIP WHITE
SS-11	11+400.000	5.40 RT	11+700.000	5.40 RT	3.11	100mm SKIP WHITE
SS-11	11+400.000	9.00 LT	11+700.000	9.00 LT	12.0	100mm SOLID WHITE
SS-11	11+400.000	9.00 RT	11+700.000	9.00 RT	12.0	100mm SOLID WHITE
SS-12	11+700.000	1.70 LT	12+000.000	1.70 LT	3.11	100mm SKIP YELLOW
SS-12	11+700.000	1.70 RT	12+000.000	1.70 RT	3.11	100mm SKIP YELLOW
SS-12	11+700.000	1.80 LT	12+000.000	1.80 LT	12.0	100mm SOLID YELLOW
SS-12	11+700.000	1.80 RT	12+000.000	1.80 RT	12.0	100mm SOLID YELLOW
SS-12	11+700.000	5.40 LT	12+000.000	5.40 LT	3.11	100mm SKIP WHITE
SS-12	11+700.000	5.40 RT	12+000.000	5.40 RT	3.11	100mm SKIP WHITE
SS-12	11+700.000	9.00 LT	12+000.000	9.00 LT	12.0	100mm SOLID WHITE
SS-12	11+700.000	9.00 RT	12+000.000	9.00 RT	12.0	100mm SOLID WHITE



**Detailed Report****SP-0006(29)229****Version: 1****SR-6; PRICE TO WELLINGTON**

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-13	12+000.000	1.70 LT	12+300.000	1.70 LT	3.11	100mm SKIP YELLOW
SS-13	12+000.000	1.70 RT	12+300.000	1.70 RT	3.11	100mm SKIP YELLOW
SS-13	12+000.000	1.80 LT	12+300.000	1.80 LT	12.0	100mm SOLID YELLOW
SS-13	12+000.000	1.80 RT	12+300.000	1.80 RT	12.0	100mm SOLID YELLOW
SS-13	12+000.000	5.40 LT	12+300.000	5.40 LT	3.11	100mm SKIP WHITE
SS-13	12+000.000	5.40 RT	12+300.000	5.40 RT	3.11	100mm SKIP WHITE
SS-13	12+000.000	9.00 LT	12+300.000	9.00 LT	12.0	100mm SOLID WHITE
SS-13	12+000.000	9.00 RT	12+300.000	9.00 RT	12.0	100mm SOLID WHITE
SS-14	12+300.000	1.70 LT	12+600.000	1.70 LT	3.11	100mm SKIP YELLOW
SS-14	12+300.000	1.70 RT	12+600.000	1.70 RT	3.11	100mm SKIP YELLOW
SS-14	12+300.000	1.80 LT	12+600.000	1.80 LT	12.0	100mm SOLID YELLOW
SS-14	12+300.000	1.80 RT	12+600.000	1.80 RT	12.0	100mm SOLID YELLOW
SS-14	12+300.000	5.40 LT	12+600.000	5.40 LT	3.11	100mm SKIP WHITE
SS-14	12+300.000	5.40 RT	12+600.000	5.40 RT	3.11	100mm SKIP WHITE
SS-14	12+300.000	9.00 LT	12+600.000	9.00 LT	12.0	100mm SOLID WHITE
SS-14	12+300.000	9.00 RT	12+600.000	9.00 RT	12.0	100mm SOLID WHITE
SS-15	12+600.000	1.70 LT	12+900.000	1.70 LT	3.11	100mm SKIP YELLOW
SS-15	12+600.000	1.70 RT	12+900.000	1.70 RT	3.11	100mm SKIP YELLOW
SS-15	12+600.000	1.80 LT	12+900.000	1.80 LT	12.0	100mm SOLID YELLOW
SS-15	12+600.000	1.80 RT	12+900.000	1.80 RT	12.0	100mm SOLID YELLOW
SS-15	12+600.000	5.40 LT	12+900.000	5.40 LT	3.11	100mm SKIP WHITE
SS-15	12+600.000	5.40 RT	12+900.000	5.40 RT	3.11	100mm SKIP WHITE
SS-15	12+600.000	9.00 LT	12+900.000	9.00 LT	12.0	100mm SOLID WHITE
SS-15	12+600.000	9.00 RT	12+900.000	9.00 RT	12.0	100mm SOLID WHITE
SS-16	12+900.000	1.70 LT	13+200.000	1.70 LT	3.11	100mm SKIP YELLOW
SS-16	12+900.000	1.70 RT	13+200.000	1.70 RT	3.11	100mm SKIP YELLOW
SS-16	12+900.000	1.80 LT	13+200.000	1.80 LT	12.0	100mm SOLID YELLOW
SS-16	12+900.000	1.80 RT	13+200.000	1.80 RT	12.0	100mm SOLID YELLOW
SS-16	12+900.000	5.40 LT	13+200.000	5.40 LT	3.11	100mm SKIP WHITE
SS-16	12+900.000	5.40 RT	13+200.000	5.40 RT	3.11	100mm SKIP WHITE
SS-16	12+900.000	9.00 LT	13+200.000	9.00 LT	12.0	100mm SOLID WHITE
SS-16	12+900.000	9.00 RT	13+200.000	9.00 RT	12.0	100mm SOLID WHITE
SS-17	13+200.000	1.70 LT	13+305.000	1.70 LT	1.09	100mm SKIP YELLOW
SS-17	13+200.000	1.70 RT	13+305.000	1.70 RT	1.09	100mm SKIP YELLOW
SS-17	13+200.000	1.80 LT	13+305.000	1.80 LT	4.2	100mm SOLID YELLOW
SS-17	13+200.000	1.80 RT	13+305.000	1.80 RT	4.2	100mm SOLID YELLOW
SS-17	13+200.000	5.40 LT	13+390.000	5.40 LT	1.97	100mm SKIP WHITE
SS-17	13+200.000	9.00 LT	13+390.000	9.00 LT	7.6	100mm SOLID WHITE
SS-17	13+200.000	5.40 RT	13+500.000	5.40 RT	3.11	100mm SKIP WHITE
SS-17	13+200.000	9.00 RT	13+500.000	9.00 RT	12.0	100mm SOLID WHITE
SS-17	13+305.000	1.80 LT	13+390.000	1.80 LT	6.59	100mm SOLID DOUBLE YELLOW

**Detailed Report****SP-0006(29)229****Version: 1****SR-6; PRICE TO WELLINGTON**

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-17	13+360.000	1.80 RT	13+390.000	1.80 RT	2.33	200mm SOLID WHITE
SS-17	13+433.000	1.70 LT	13+500.000	1.70 LT	0.69	100mm SKIP YELLOW
SS-17	13+433.000	1.70 RT	13+500.000	1.70 RT	0.69	100mm SKIP YELLOW
SS-17	13+433.000	1.80 LT	13+500.000	1.80 LT	2.68	100mm SOLID YELLOW
SS-17	13+433.000	1.80 RT	13+500.000	1.80 RT	2.68	100mm SOLID YELLOW
SS-17	13+433.000	5.40 LT	13+500.000	5.40 LT	0.69	100mm SKIP WHITE
SS-17	13+433.000	9.00 LT	13+500.000	9.00 LT	2.68	100mm SOLID WHITE
SS-18	13+500.000	1.70 LT	13+800.000	1.70 LT	3.11	100mm SKIP YELLOW
SS-18	13+500.000	1.70 RT	13+800.000	1.70 RT	3.11	100mm SKIP YELLOW
SS-18	13+500.000	1.80 LT	13+800.000	1.80 LT	12.0	100mm SOLID YELLOW
SS-18	13+500.000	1.80 RT	13+800.000	1.80 RT	12.0	100mm SOLID YELLOW
SS-18	13+500.000	5.40 LT	13+800.000	5.40 LT	3.11	100mm SKIP WHITE
SS-18	13+500.000	5.40 RT	13+800.000	5.40 RT	3.11	100mm SKIP WHITE
SS-18	13+500.000	9.00 LT	13+800.000	9.00 LT	12.0	100mm SOLID WHITE
SS-18	13+500.000	9.00 RT	13+800.000	9.00 RT	12.0	100mm SOLID WHITE
SS-19	13+800.000	1.70 LT	14+100.000	1.70 LT	3.11	100mm SKIP YELLOW
SS-19	13+800.000	1.70 RT	14+100.000	1.70 RT	3.11	100mm SKIP YELLOW
SS-19	13+800.000	1.80 LT	14+100.000	1.80 LT	12.0	100mm SOLID YELLOW
SS-19	13+800.000	1.80 RT	14+100.000	1.80 RT	12.0	100mm SOLID YELLOW
SS-19	13+800.000	5.40 LT	14+100.000	5.40 LT	3.11	100mm SKIP WHITE
SS-19	13+800.000	5.40 RT	14+100.000	5.40 RT	3.11	100mm SKIP WHITE
SS-19	13+800.000	9.00 LT	14+100.000	9.00 LT	12.0	100mm SOLID WHITE
SS-19	13+800.000	9.00 RT	14+100.000	9.00 RT	12.0	100mm SOLID WHITE
SS-2	8+700.000	1.70 LT	9+000.000	1.70 LT	3.11	100mm SKIP YELLOW
SS-2	8+700.000	1.70 RT	9+000.000	1.70 RT	3.11	100mm SKIP YELLOW
SS-2	8+700.000	1.80 LT	9+000.000	1.80 LT	12.0	100mm SOLID YELLOW
SS-2	8+700.000	1.80 RT	9+000.000	1.80 RT	12.0	100mm SOLID YELLOW
SS-2	8+700.000	5.40 LT	9+000.000	5.40 LT	3.11	100mm SKIP WHITE
SS-2	8+700.000	5.40 RT	9+000.000	5.40 RT	3.11	100mm SKIP WHITE
SS-2	8+700.000	9.00 LT	9+000.000	9.00 LT	12.0	100mm SOLID WHITE
SS-2	8+700.000	9.00 RT	9+000.000	9.00 RT	12.0	100mm SOLID WHITE
SS-20	14+100.000	1.70 LT	14+400.000	1.70 LT	3.09	100mm SKIP YELLOW
SS-20	14+100.000	1.70 RT	14+400.000	1.70 RT	3.11	100mm SKIP YELLOW
SS-20	14+100.000	1.80 LT	14+400.000	1.80 LT	11.93	100mm SOLID YELLOW
SS-20	14+100.000	1.80 RT	14+400.000	1.80 RT	12.02	100mm SOLID YELLOW
SS-20	14+100.000	5.40 LT	14+400.000	5.40 LT	3.09	100mm SKIP WHITE
SS-20	14+100.000	5.40 RT	14+400.000	5.40 RT	3.12	100mm SKIP WHITE
SS-20	14+100.000	9.00 LT	14+400.000	9.00 LT	11.91	100mm SOLID WHITE
SS-20	14+100.000	9.00 RT	14+400.000	9.00 RT	12.09	100mm SOLID WHITE
SS-21	14+400.000	1.70 LT	14+563.000	1.70 LT	1.68	100mm SKIP YELLOW
SS-21	14+400.000	1.70 RT	14+563.000	1.70 RT	1.69	100mm SKIP YELLOW

**Detailed Report****SP-0006(29)229****Version: 1****SR-6; PRICE TO WELLINGTON**

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-21	14+400.000	1.80 LT	14+563.000	1.80 LT	6.5	100mm SOLID YELLOW
SS-21	14+400.000	1.80 RT	14+563.000	1.80 RT	6.52	100mm SOLID YELLOW
SS-21	14+400.000	5.40 RT	14+563.000	5.40 RT	1.69	100mm SKIP WHITE
SS-21	14+400.000	9.00 RT	14+563.000	12.60 RT	6.59	100mm SOLID WHITE
SS-21	14+400.000	5.40 LT	14+700.000	5.40 LT	3.12	100mm SKIP WHITE
SS-21	14+400.000	9.00 LT	14+700.000	9.00 LT	11.95	100mm SOLID WHITE
SS-21	14+405.000	9.00 RT	14+441.000	9.00 RT	0.49	100mm DOTTED WHITE
SS-21	14+441.000	9.00 RT	14+563.000	9.00 RT	9.5	200mm SOLID WHITE
SS-21	14+589.000	1.80 LT	14+619.000	1.80 LT	2.33	200mm SOLID WHITE
SS-21	14+589.000	1.80 RT	14+662.000	1.80 RT	5.68	100mm SOLID DOUBLE YELLOW
SS-21	14+589.000	5.40 RT	14+700.000	5.40 RT	1.15	100mm SKIP WHITE
SS-21	14+589.000	9.00 RT	14+700.000	9.00 RT	4.44	100mm SOLID WHITE
SS-21	14+662.000	1.70 LT	14+700.000	1.70 LT	0.39	100mm SKIP YELLOW
SS-21	14+662.000	1.70 RT	14+700.000	1.70 RT	0.39	100mm SKIP YELLOW
SS-21	14+662.000	1.80 LT	14+700.000	1.80 LT	1.49	100mm SOLID YELLOW
SS-21	14+662.000	1.80 RT	14+700.000	1.80 RT	1.51	100mm SOLID YELLOW
SS-22	14+700.000	1.70 LT	14+767.000	1.70 LT	0.69	100mm SKIP YELLOW
SS-22	14+700.000	1.70 RT	14+767.000	1.70 RT	0.69	100mm SKIP YELLOW
SS-22	14+700.000	1.80 LT	14+767.000	1.80 LT	2.68	100mm SOLID YELLOW
SS-22	14+700.000	1.80 RT	14+767.000	1.80 RT	2.68	100mm SOLID YELLOW
SS-22	14+700.000	5.40 RT	14+768.000	5.40 RT	0.7	100mm SKIP WHITE
SS-22	14+700.000	5.40 LT	14+828.000	5.40 LT	1.32	100mm SKIP WHITE
SS-22	14+700.000	9.00 LT	14+842.000	9.00 LT	5.63	100mm SOLID WHITE
SS-22	14+700.000	9.00 RT	14+912.655	7.71 RT	8.59	100mm SOLID WHITE
SS-22	14+767.000	1.80 LT	14+840.000	1.80 LT	5.68	100mm SOLID DOUBLE YELLOW
SS-22	14+768.000	5.40 RT	14+862.000	5.40 RT	3.79	100mm SOLID WHITE
SS-22	14+768.000	5.40 RT	14+912.655	3.58 RT	0.5	100mm SKIP WHITE
SS-22	14+810.000	1.80 RT	14+840.000	1.80 RT	2.33	200mm SOLID WHITE
SS-22	14+828.000	5.40 LT	14+842.000	5.40 LT	0.54	100mm SOLID WHITE
SS-22	14+865.000	5.40 LT	14+912.655	6.29 LT	1.89	100mm SOLID WHITE
SS-22	14+865.000	9.00 LT	14+912.655	9.62 LT	1.87	100mm SOLID WHITE
SS-22	14+872.000	1.52 RT	14+912.655	0.41 RT	0.42	100mm SKIP YELLOW
SS-22	14+872.000	1.62 RT	14+912.655	2.42 LT	1.85	100mm SOLID YELLOW
SS-22	14+872.000	1.62 RT	14+912.655	0.51 RT	1.64	100mm SOLID YELLOW
SS-22	14+872.000	1.79 LT	14+912.655	2.32 LT	0.42	100mm SKIP YELLOW
SS-3	9+000.000	1.70 LT	9+300.000	1.70 LT	3.11	100mm SKIP YELLOW
SS-3	9+000.000	1.70 RT	9+300.000	1.70 RT	3.11	100mm SKIP YELLOW
SS-3	9+000.000	1.80 LT	9+300.000	1.80 LT	12.0	100mm SOLID YELLOW
SS-3	9+000.000	1.80 RT	9+300.000	1.80 RT	12.0	100mm SOLID YELLOW
SS-3	9+000.000	5.40 LT	9+300.000	5.40 LT	3.11	100mm SKIP WHITE
SS-3	9+000.000	5.40 RT	9+300.000	5.40 RT	3.11	100mm SKIP WHITE

**Detailed Report****SP-0006(29)229****Version: 1****SR-6; PRICE TO WELLINGTON**

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-3	9+000.000	9.00 LT	9+300.000	9.00 LT	12.0	100mm SOLID WHITE
SS-3	9+000.000	9.00 RT	9+300.000	9.00 RT	12.0	100mm SOLID WHITE
SS-4	9+300.000	1.70 LT	9+325.000	1.70 LT	0.26	100mm SKIP YELLOW
SS-4	9+300.000	1.70 RT	9+325.000	1.70 RT	0.26	100mm SKIP YELLOW
SS-4	9+300.000	1.80 LT	9+325.000	1.80 LT	1.0	100mm SOLID YELLOW
SS-4	9+300.000	1.80 RT	9+325.000	1.80 RT	1.0	100mm SOLID YELLOW
SS-4	9+300.000	5.40 LT	9+410.000	5.40 LT	1.14	100mm SKIP WHITE
SS-4	9+300.000	9.00 LT	9+410.000	12.00 LT	4.38	100mm SOLID WHITE
SS-4	9+300.000	5.40 RT	9+600.000	5.40 RT	3.12	100mm SKIP WHITE
SS-4	9+300.000	9.00 RT	9+600.000	9.00 RT	12.06	100mm SOLID WHITE
SS-4	9+325.000	1.80 LT	9+410.000	1.80 LT	6.55	100mm SOLID DOUBLE YELLOW
SS-4	9+380.000	1.80 RT	9+410.000	1.80 RT	2.33	200mm SOLID WHITE
SS-4	9+439.000	1.70 LT	9+600.000	1.70 LT	1.67	100mm SKIP YELLOW
SS-4	9+439.000	1.70 RT	9+600.000	1.70 RT	1.67	100mm SKIP YELLOW
SS-4	9+439.000	1.80 LT	9+600.000	1.80 LT	6.44	100mm SOLID YELLOW
SS-4	9+439.000	1.80 RT	9+600.000	1.80 RT	6.44	100mm SOLID YELLOW
SS-4	9+439.000	5.40 LT	9+600.000	5.40 LT	1.67	100mm SKIP WHITE
SS-4	9+439.000	9.00 LT	9+600.000	9.00 LT	6.44	100mm SOLID WHITE
SS-5	9+600.000	1.70 LT	9+900.000	1.70 LT	3.11	100mm SKIP YELLOW
SS-5	9+600.000	1.70 RT	9+900.000	1.70 RT	3.11	100mm SKIP YELLOW
SS-5	9+600.000	1.80 LT	9+900.000	1.80 LT	12.0	100mm SOLID YELLOW
SS-5	9+600.000	1.80 RT	9+900.000	1.80 RT	12.0	100mm SOLID YELLOW
SS-5	9+600.000	5.40 LT	9+900.000	5.40 LT	3.11	100mm SKIP WHITE
SS-5	9+600.000	5.40 RT	9+900.000	5.40 RT	3.11	100mm SKIP WHITE
SS-5	9+600.000	9.00 LT	9+900.000	9.00 LT	12.0	100mm SOLID WHITE
SS-5	9+600.000	9.00 RT	9+900.000	9.00 RT	12.0	100mm SOLID WHITE
SS-6	10+173.000	1.80 LT	10+200.000	1.80 LT	2.09	100mm SOLID DOUBLE YELLOW
SS-6	9+900.000	1.70 LT	10+173.000	1.70 LT	2.83	100mm SKIP YELLOW
SS-6	9+900.000	1.70 RT	10+173.000	1.70 RT	2.83	100mm SKIP YELLOW
SS-6	9+900.000	1.80 LT	10+173.000	1.80 LT	10.92	100mm SOLID YELLOW
SS-6	9+900.000	1.80 RT	10+173.000	1.80 RT	10.92	100mm SOLID YELLOW
SS-6	9+900.000	5.40 LT	10+200.000	5.40 LT	3.11	100mm SKIP WHITE
SS-6	9+900.000	5.40 RT	10+200.000	5.40 RT	3.11	100mm SKIP WHITE
SS-6	9+900.000	9.00 LT	10+200.000	9.00 LT	12.0	100mm SOLID WHITE
SS-6	9+900.000	9.00 RT	10+200.000	9.00 RT	12.0	100mm SOLID WHITE
SS-7	10+200.000	1.80 LT	10+258.000	1.80 LT	4.5	100mm SOLID DOUBLE YELLOW
SS-7	10+200.000	5.40 LT	10+258.000	5.40 LT	0.6	100mm SKIP WHITE
SS-7	10+200.000	9.00 LT	10+258.000	9.00 LT	2.32	100mm SOLID WHITE
SS-7	10+200.000	5.40 RT	10+500.000	5.40 RT	3.11	100mm SKIP WHITE
SS-7	10+200.000	9.00 RT	10+500.000	9.00 RT	12.0	100mm SOLID WHITE
SS-7	10+228.000	1.80 RT	10+258.000	1.80 RT	2.33	200mm SOLID WHITE

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Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-7	10+238.920	102.24 LT	10+270.120	16.00 LT	7.37	100mm SOLID DOUBLE YELLOW
SS-7	10+282.000	1.70 LT	10+500.000	1.70 LT	2.26	100mm SKIP YELLOW
SS-7	10+282.000	1.70 RT	10+500.000	1.70 RT	2.26	100mm SKIP YELLOW
SS-7	10+282.000	1.80 LT	10+500.000	1.80 LT	8.72	100mm SOLID YELLOW
SS-7	10+282.000	1.80 RT	10+500.000	1.80 RT	8.72	100mm SOLID YELLOW
SS-7	10+282.000	5.40 LT	10+500.000	5.40 LT	2.26	100mm SKIP WHITE
SS-7	10+282.000	9.00 LT	10+500.000	9.00 LT	8.72	100mm SOLID WHITE
SS-8	10+500.000	1.70 LT	10+800.000	1.70 LT	3.11	100mm SKIP YELLOW
SS-8	10+500.000	1.70 RT	10+800.000	1.70 RT	3.11	100mm SKIP YELLOW
SS-8	10+500.000	1.80 LT	10+800.000	1.80 LT	12.0	100mm SOLID YELLOW
SS-8	10+500.000	1.80 RT	10+800.000	1.80 RT	12.0	100mm SOLID YELLOW
SS-8	10+500.000	5.40 LT	10+800.000	5.40 LT	3.11	100mm SKIP WHITE
SS-8	10+500.000	5.40 RT	10+800.000	5.40 RT	3.11	100mm SKIP WHITE
SS-8	10+500.000	9.00 LT	10+800.000	9.00 LT	12.0	100mm SOLID WHITE
SS-8	10+500.000	9.00 RT	10+800.000	9.00 RT	12.0	100mm SOLID WHITE
SS-9	10+800.000	1.70 LT	11+100.000	1.70 LT	3.11	100mm SKIP YELLOW
SS-9	10+800.000	1.70 RT	11+100.000	1.70 RT	3.11	100mm SKIP YELLOW
SS-9	10+800.000	1.80 LT	11+100.000	1.80 LT	12.0	100mm SOLID YELLOW
SS-9	10+800.000	1.80 RT	11+100.000	1.80 RT	12.0	100mm SOLID YELLOW
SS-9	10+800.000	5.40 LT	11+100.000	5.40 LT	3.11	100mm SKIP WHITE
SS-9	10+800.000	5.40 RT	11+100.000	5.40 RT	3.11	100mm SKIP WHITE
SS-9	10+800.000	9.00 LT	11+100.000	9.00 LT	12.0	100mm SOLID WHITE
SS-9	10+800.000	9.00 RT	11+100.000	9.00 RT	12.0	100mm SOLID WHITE

1,308.06

### Note # Note

- 1 Assume 100 mm solid line - 25.0 m/L  
100 mm dashed line - 96.6 m/L  
200 mm solid line / 100 mm double solid line - 12.9 m/L  
200 mm lane drop line - 51.6 m/L

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**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>027650020</b>	<b>Pavement Message Paint</b>				91	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-1	8+620.000	7.20 LT			4.0	"ONLY"
SS-1	8+640.000	7.20 LT			4.0	"EXIT"
SS-17	13+363.000	0.00 RT			1.0	LEFT ARROW
SS-17	13+384.000	0.00 RT			1.0	LEFT ARROW
SS-17	13+395.300	17.50 LT	13+402.200	15.50 LT	2.0	STOP BAR
SS-19	14+055.700	18.00 LT	14+060.100	18.00 LT	1.0	STOP BAR
SS-21	14+444.000	10.80 RT			1.0	RIGHT ARROW
SS-21	14+456.000	10.80 RT			4.0	"ONLY"
SS-21	14+465.000	10.80 RT			1.0	RIGHT ARROW
SS-21	14+511.000	9.00 RT	14+511.000	12.60 RT	1.0	600mm WHITE
SS-21	14+518.500	10.80 RT			4.0	RAILROAD CROSSING
SS-21	14+526.000	9.00 RT	14+526.000	12.60 RT	1.0	600mm WHITE
SS-21	14+536.000	10.80 RT			1.0	RIGHT ARROW
SS-21	14+548.000	10.80 RT			4.0	"ONLY"
SS-21	14+557.000	10.80 RT			1.0	RIGHT ARROW
SS-21	14+575.700	19.20 RT	14+580.700	18.50 RT	2.0	STOP BAR
SS-21	14+595.000	0.00 LT			1.0	LEFT ARROW
SS-21	14+598.000	1.80 LT	14+598.000	1.80 RT	1.0	600mm WHITE
SS-21	14+605.500	0.00 LT			4.0	RAILROAD CROSSING
SS-21	14+613.000	1.80 LT	14+613.000	1.80 RT	1.0	600mm WHITE
SS-21	14+616.000	0.00 LT			1.0	LEFT ARROW
SS-22	14+813.000	0.00 RT			1.0	LEFT ARROW
SS-22	14+834.000	0.00 LT			1.0	LEFT ARROW
SS-22	14+841.800	14.10 LT	14+866.200	13.00 LT	8.0	CROSS WALK
SS-22	14+843.000	11.71 RT	14+843.000	13.20 LT	22.0	SCHOOL CROSSBARS
SS-22	14+844.600	17.10 LT	14+861.400	16.40 LT	8.0	CROSS WALK
SS-22	14+845.200	18.20 LT	14+853.500	18.00 LT	2.0	STOP BAR
SS-4	9+383.000	0.00 RT			1.0	LEFT ARROW
SS-4	9+404.000	0.00 RT			1.0	LEFT ARROW
SS-4	9+416.800	15.80 LT	9+422.600	15.80 LT	2.0	STOP BAR
SS-7	10+231.000	0.00 RT			1.0	LEFT ARROW
SS-7	10+252.000	0.00 RT			1.0	LEFT ARROW
SS-7	10+259.100	16.00 LT	10+270.000	16.00 LT	2.0	STOP BAR
					91.0	

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**10 - ROADWAY**      **Alt Group: 0**    **Alt #: 0**

Item Number	Description					Use Qty	Unit
<b>02771001*</b>	<b>Concrete Waterway</b>					20	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
DT-4	14+855.000	LT			19.6		
					19.6		
<b>027710015</b>	<b>Concrete Curb Type B4</b>					4	m
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
RD-21	14+501.000	16.13 LT	14+501.000	19.30 LT	3.17		
					3.17		
<b>02771002*</b>	<b>Waterway Transition</b>					2	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
DT-4	14+855.000	LT			2.0		
					2.0		
<b>027710025</b>	<b>Concrete Curb and Gutter Type B1</b>					1,599	m
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
RD-2	8+720.000	12.75 LT	9+000.000	12.75 LT	280.0		
RD-20	14+353.000	12.75 LT	14+400.000	12.75 LT	47.0		
RD-21	14+400.000	12.75 LT	14+700.000	12.75 LT	300.0		
RD-21	14+581.131	21.89 RT	14+700.000	12.75 RT	124.52		
RD-22	14+700.000	12.75 LT	14+912.655	12.29 LT	214.62		
RD-22	14+700.000	12.75 RT	14+912.655	10.46 RT	215.49		
RD-3	9+000.000	12.75 LT	9+300.000	12.75 LT	300.0		
RD-4	9+300.000	12.75 LT	9+413.030	12.75 LT	113.03		
RD-4	9+414.789	14.70 LT	9+417.157	17.907 LT	4.0		
					1,598.66		

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**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>027710040</b>	<b>Concrete Driveway Flared 150 mm Thick</b>				597	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-2	8+769.000	LT			21.81	
RD-2	8+794.000	LT			21.81	
RD-2	8+808.000	LT			19.77	
RD-2	8+844.000	LT			21.81	
RD-2	8+875.000	LT			35.07	
RD-2	8+965.000	LT			29.97	
RD-2	8+989.000	LT			19.77	
RD-20	14+387.000	LT			21.65	
RD-20	14+398.000	LT			21.69	
RD-21	14+453.000	LT			19.65	
RD-21	14+504.000	LT			19.77	
RD-21	14+517.000	LT			19.77	
RD-21	14+560.000	LT			24.87	
RD-21	14+624.000	LT			19.61	
RD-21	14+632.000	LT			17.58	
RD-21	14+655.000	LT			19.77	
RD-21	14+675.000	LT			24.87	
RD-22	14+717.000	LT			19.77	
RD-22	14+744.000	LT			19.77	
RD-22	14+754.000	LT			19.77	
RD-22	14+772.000	LT			19.77	
RD-3	9+027.000	LT			39.33	
RD-3	9+129.000	LT			19.77	
RD-3	9+149.000	LT			19.77	
RD-3	9+167.000	LT			19.77	
RD-3	9+207.000	LT			19.77	
RD-4	9+314.000	LT			19.77	
					596.5	
<b>027710045</b>	<b>Concrete Driveway Flared 175 mm Thick</b>				81	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-22	14+902.000	LT			80.29	
					80.29	



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**Alt Group: 0 Alt #: 0**

Item Number	Description					Use Qty	Unit
<b>027710060</b>	<b>Disabled Pedestrian Ramp Type A</b>					9	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
RD-21	14+581.076	17.418 RT			2.98		
RD-4	9+414.600	13.65 LT			5.79		
					8.77		
<b>027710075</b>	<b>Disabled Pedestrian Ramp Type D</b>					7	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
RD-22	14+843.000	12.53 RT			6.04		
					6.04		
<b>027710085</b>	<b>Disabled Pedestrian Ramp Type G</b>					8	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
RD-22	14+843.510	15.54 LT			3.66		
RD-22	14+862.960	14.73 LT			4.06		
					7.72		
<b>027760010</b>	<b>Concrete Sidewalk</b>					2,408	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
RD-2	8+720.000	12.75 LT	9+000.000	12.75 LT	394.74		
RD-20	14+353.400	12.75 LT	14+400.000	12.75 LT	57.8		
RD-21	14+400.000	12.75 LT	14+700.000	12.75 LT	427.13		
RD-21	14+586.000	27.34 RT	14+700.000	12.75 RT	227.6		
RD-22	14+700.000	12.75 LT	14+912.655	12.29 LT	265.73		
RD-22	14+700.000	12.75 RT	14+912.655	10.46 RT	382.45		
RD-3	9+000.000	12.75 LT	9+300.000	12.75 LT	464.08		
RD-4	9+300.000	12.75 LT	9+415.800	12.75 LT	187.7		
					2,407.23		

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**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>027760030</b>	<b>Concrete Flatwork 100 mm thick</b>				130	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DT-8	14+453.003	LT			18.36	DRIVEWAY EXTENSION
DT-8	14+623.820	LT			23.6	DRIVEWAY EXTENSION
DT-8	14+631.720	LT			24.96	DRIVEWAY EXTENSION
DT-8	9+027.334	LT			45.2	DRIVEWAY EXTENSION
DT-8	9+167.000	LT			17.0	DRIVEWAY EXTENSION
					129.12	
<b>027850030</b>	<b>Chip Seal Coat Type C</b>				154,934	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-1	8+500.000		8+700.000		4,754.0	
RD-10	11+100.000		11+400.000		7,200.0	
RD-11	11+400.000		11+700.000		7,200.0	
RD-12	11+700.000		12+000.000		7,200.0	
RD-13	12+000.000		12+300.000		7,200.0	
RD-14	12+300.000		12+600.000		7,200.0	
RD-15	12+600.000		12+900.000		7,200.0	
RD-16	12+900.000		13+200.000		7,200.0	
RD-17	13+200.000		13+500.000		7,200.0	
RD-18	13+500.000		13+800.000		7,200.0	
RD-19	13+800.000		14+100.000		7,432.0	
RD-2	8+700.000		9+000.000		7,200.0	
RD-20	14+100.000		14+400.000		7,200.0	
RD-21	14+400.000		14+700.000		7,379.0	
RD-22	14+700.000		14+912.655		5,009.0	
RD-3	9+000.000		9+300.000		7,200.0	
RD-4	9+300.000		9+600.000		7,202.0	
RD-5	9+600.000		9+900.000		7,200.0	
RD-6	9+900.000		10+200.000		7,200.0	
RD-7	10+200.000		10+500.000		7,200.0	
RD-7	2+000.000		2+099.086		758.0	2000 East
RD-8	10+500.000		10+800.000		7,200.0	
RD-9	10+800.000		11+100.000		7,200.0	
					154,934.0	

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**10 - ROADWAY**

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Item Number	Description				Use Qty	Unit
<b>027850055</b>	<b>Emulsified Asphalt CRS-2P</b>				300	Mg
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-1	8+500.000		8+700.000		9.11	
RD-10	11+100.000		11+400.000		13.79	
RD-11	11+400.000		11+700.000		13.79	
RD-12	11+700.000		12+000.000		13.79	
RD-13	12+000.000		12+300.000		13.79	
RD-14	12+300.000		12+600.000		13.79	
RD-15	12+600.000		12+900.000		13.79	
RD-16	12+900.000		13+200.000		13.79	
RD-17	13+200.000		13+500.000		13.79	
RD-18	13+500.000		13+800.000		13.79	
RD-19	13+800.000		14+100.000		14.24	
RD-2	8+700.000		9+000.000		13.79	
RD-20	14+100.000		14+400.000		13.79	
RD-21	14+400.000		14+700.000		14.14	
RD-22	14+700.000		14+912.655		9.6	
RD-3	9+000.000		9+300.000		13.79	
RD-4	9+300.000		9+600.000		13.8	
RD-5	9+600.000		9+900.000		13.79	
RD-6	9+900.000		10+200.000		13.79	
RD-7	10+200.000		10+500.000		13.79	
RD-7	2+000.000		2+099.086		1.45	2000 East
RD-8	10+500.000		10+800.000		13.79	
RD-9	10+800.000		11+100.000		13.79	
					296.77	

Note # Note

- 1 Assumed application rate of 1.91 liters per square meter and unit weight of 997 liters per Megagram

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10 - ROADWAY

Alt Group: 0 Alt #: 0

Item Number	Description				Use Qty	Unit
<b>028210024</b>	<b>1.2 m Chain Link Fence, Type III</b>				770	m
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-11	11+482.000	24.30 LT	11+502.400	18.00 LT	27.1	
RD-11	11+508.400	18.00 LT	11+529.200	18.00 LT	20.96	
RD-11	11+514.900	18.00 LT	11+514.900	19.80 LT	1.8	
RD-11	11+534.800	18.00 LT	11+541.400	25.00 LT	13.53	
RD-12	11+995.900	21.34 LT	12+000.000	21.34 LT	4.12	
RD-13	12+000.000	21.34 LT	12+007.200	21.34 LT	7.2	
RD-13	12+013.200	21.34 LT	12+012.300	24.34 LT	5.93	
RD-2	8+720.000	14.85 LT	8+765.200	14.85 LT	45.2	
RD-2	8+773.000	14.85 LT	8+789.000	19.30 LT	20.4	
RD-2	8+798.500	19.30 LT	8+806.600	21.37 LT	18.57	
RD-2	8+811.000	14.85 LT	8+819.800	19.40 LT	13.37	
RD-2	8+819.800	14.85 LT	8+839.000	14.85 LT	19.2	
RD-2	8+847.500	20.50 LT	8+870.000	14.85 LT	27.76	
RD-2	8+880.000	14.85 LT	8+929.400	20.50 LT	55.05	
RD-2	8+971.300	20.50 LT	8+985.400	20.50 LT	24.75	
RD-21	14+447.800	19.30 LT	14+451.000	14.85 LT	6.61	
RD-21	14+455.100	14.85 LT	14+502.000	14.85 LT	46.17	
RD-21	14+506.000	14.85 LT	14+514.400	16.91 LT	12.07	
RD-21	14+563.000	14.85 LT	14+610.900	19.30 LT	54.9	
RD-22	14+723.300	19.29 LT	14+739.400	19.29 LT	25.74	
RD-22	14+767.800	21.09 LT	14+769.700	15.78 LT	5.65	
RD-22	14+772.400	22.19 LT	14+837.600	14.85 LT	60.17	
RD-3	9+132.200	19.30 LT	9+146.700	21.56 LT	25.68	
RD-3	9+151.700	19.30 LT	9+165.000	14.85 LT	17.83	
RD-3	9+184.300	14.85 LT	9+203.800	14.85 LT	19.42	
RD-3	9+214.600	14.85 LT	9+300.000	14.85 LT	85.37	
RD-4	9+300.000	14.85 LT	9+311.000	14.85 LT	11.0	
RD-4	9+318.200	14.85 LT	9+410.100	19.25 LT	94.68	
					770.23	

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**Version: 1**

**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description					Use Qty	Unit
<b>028210028</b>	<b>1.8 m Chain Link Fence, Type III</b>					46	m
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
RD-15	12+679.000	12.34 LT	12+690.000	21.34 LT	11.0		
RD-15	12+696.000	21.34 LT	12+731.000	21.34 LT	35.0		
					46.0		
<b>028210042</b>	<b>Chain Link Fence Type I with Barb Wire Arm</b>					167	m
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
RD-10	11+118.800	31.00 LT	11+123.900	23.34 LT	13.12		
RD-10	11+131.100	23.34 LT	11+202.200	27.85 LT	75.2		
RD-11	11+684.800	24.00 LT	11+700.000	21.34 LT	16.45		
RD-12	11+700.000	21.34 LT	11+725.200	21.34 LT	25.2		
RD-12	11+733.600	21.34 LT	11+752.500	24.00 LT	24.89		
RD-19	14+017.300	18.30 LT	14+023.000	18.30 LT	5.69		
RD-19	14+026.600	18.30 LT	14+032.400	18.30 LT	5.8		
					166.35		

**Detailed Report**  
**SP-0006(29)229**  
**SR-6; PRICE TO WELLINGTON**

**Version: 1**

**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>028210044</b>	<b>Chain Link Brace Post</b>				94	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-10	11+118.800	23.34 LT			1.0	
RD-10	11+118.800	31.00 LT			1.0	
RD-10	11+123.900	23.34 LT			1.0	
RD-10	11+131.100	23.34 LT			1.0	
RD-10	11+201.300	23.34 LT			1.0	
RD-10	11+202.200	27.85 LT			1.0	
RD-11	11+482.000	18.00 LT			1.0	
RD-11	11+482.000	24.30 LT			1.0	
RD-11	11+502.400	18.00 LT			1.0	
RD-11	11+508.400	18.00 LT			1.0	
RD-11	11+514.900	18.00 LT			1.0	
RD-11	11+514.900	19.80 LT			1.0	
RD-11	11+529.200	18.00 LT			1.0	
RD-11	11+534.800	18.00 LT			1.0	
RD-11	11+541.400	18.00 LT			1.0	
RD-11	11+541.400	25.00 LT			1.0	
RD-11	11+684.800	24.00 LT			1.0	
RD-11	11+687.000	21.34 LT			1.0	
RD-12	11+725.200	21.34 LT			1.0	
RD-12	11+733.600	21.34 LT			1.0	
RD-12	11+752.500	24.00 LT			1.0	
RD-12	11+754.900	21.34 LT			1.0	
RD-12	11+995.900	21.34 LT			1.0	
RD-13	12+007.200	21.34 LT			1.0	
RD-13	12+012.300	24.34 LT			1.0	
RD-13	12+013.200	21.34 LT			1.0	
RD-13	12+015.000	21.34 LT			1.0	
RD-15	12+679.000	21.34 LT			1.0	
RD-15	12+690.000	21.34 LT			1.0	
RD-15	12+696.000	21.34 LT			1.0	
RD-15	12+731.000	21.34 LT			1.0	
RD-19	14+017.300	18.30 LT			1.0	
RD-19	14+017.300	25.99 LT			1.0	
RD-19	14+023.000	18.30 LT			1.0	
RD-19	14+026.600	18.30 LT			1.0	
RD-19	14+032.400	18.30 LT			1.0	
RD-19	14+032.400	31.34 LT			1.0	

# Detailed Report

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Version: 1

## SR-6; PRICE TO WELLINGTON

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-2	8+720.000	14.85 LT			1.0	
RD-2	8+765.200	14.85 LT			1.0	
RD-2	8+773.000	14.85 LT			1.0	
RD-2	8+789.000	14.85 LT			1.0	
RD-2	8+789.000	19.30 LT			1.0	
RD-2	8+798.400	14.85 LT			1.0	
RD-2	8+798.500	19.30 LT			1.0	
RD-2	8+806.000	14.85 LT			1.0	
RD-2	8+806.600	21.37 LT			1.0	
RD-2	8+811.000	14.85 LT			1.0	
RD-2	8+819.800	14.85 LT			1.0	
RD-2	8+819.800	19.40 LT			1.0	
RD-2	8+839.000	14.85 LT			1.0	
RD-2	8+847.500	20.50 LT			1.0	
RD-2	8+847.900	14.85 LT			1.0	
RD-2	8+870.000	14.85 LT			1.0	
RD-2	8+880.000	14.85 LT			1.0	
RD-2	8+929.400	14.85 LT			1.0	
RD-2	8+929.400	20.50 LT			1.0	
RD-2	8+971.300	20.50 LT			1.0	
RD-2	8+972.000	14.85 LT			1.0	
RD-2	8+985.400	14.85 LT			1.0	
RD-2	8+985.400	20.50 LT			1.0	
RD-21	14+447.800	19.30 LT			1.0	
RD-21	14+448.800	14.85 LT			1.0	
RD-21	14+451.000	14.85 LT			1.0	
RD-21	14+455.100	14.85 LT			1.0	
RD-21	14+502.000	14.85 LT			1.0	
RD-21	14+506.000	14.85 LT			1.0	
RD-21	14+513.600	19.30 LT			1.0	
RD-21	14+515.000	14.85 LT			1.0	
RD-21	14+563.000	14.85 LT			1.0	
RD-21	14+610.900	19.30 LT			1.0	
RD-21	14+613.000	14.85 LT			1.0	
RD-22	14+723.300	19.29 LT			1.0	
RD-22	14+725.000	14.85 LT			1.0	
RD-22	14+739.400	19.29 LT			1.0	
RD-22	14+741.200	14.85 LT			1.0	
RD-22	14+767.800	21.09 LT			1.0	
RD-22	14+769.700	15.78 LT			1.0	
RD-22	14+772.400	22.19 LT			1.0	

# Detailed Report

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## SR-6; PRICE TO WELLINGTON

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-22	14+775.500	14.85 LT			1.0	
RD-22	14+837.600	14.85 LT			1.0	
RD-3	9+132.100	14.85 LT			1.0	
RD-3	9+132.200	19.30 LT			1.0	
RD-3	9+146.700	14.85 LT			1.0	
RD-3	9+146.700	21.56 LT			1.0	
RD-3	9+151.600	14.85 LT			1.0	
RD-3	9+151.700	19.30 LT			1.0	
RD-3	9+165.000	14.85 LT			1.0	
RD-3	9+184.300	14.85 LT			1.0	
RD-3	9+203.800	14.85 LT			1.0	
RD-3	9+214.600	14.85 LT			1.0	
RD-4	9+311.000	14.85 LT			1.0	
RD-4	9+318.200	14.85 LT			1.0	
RD-4	9+408.300	14.85 LT			1.0	
RD-4	9+410.100	19.25 LT			1.0	
					<hr/> 94.0	

### 028210052 Chain Link Gate H- 1.8 m X W- 1.2 m

1 Each

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-12	11+725.800	21.34 LT			1.0	
					<hr/> 1.0	

### 028210072 Chain Link Gate H- 1.2 m X W- 3.0 m

2 Each

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-11	11+503.900	18.00 LT			1.0	
RD-11	11+506.900	18.00 LT			1.0	
					<hr/> 2.0	

### 028210080 Chain Link Gate H- 1.2 m X W- 3.6 m

1 Each

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-3	9+149.000	14.85 LT			1.0	
					<hr/> 1.0	



**Detailed Report**  
**SP-0006(29)229**  
**SR-6; PRICE TO WELLINGTON**

**Version: 1**

**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>028210084</b>	<b>Chain Link Gate H- 1.8 m X W- 3.6 m</b>				<b>3</b>	<b>Each</b>
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-12	11+728.200	21.34 LT			1.0	
RD-12	11+731.800	21.34 LT			1.0	
RD-19	14+024.500	18.30 LT			1.0	
					<hr/> 3.0	
<b>02821008P</b>	<b>Sliding Chain Link Gate H-1.8 m X W-9.1 m</b>				<b>2</b>	<b>Each</b>
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-10	11+126.6	23.336			1.0	
RD-10	11+194.6	23.336			1.0	
					<hr/> 2.0	
<b>028220010</b>	<b>Right-of-Way Fence, Type A (Metal Post)</b>				<b>319</b>	<b>m</b>
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DT-0	MITIGATION				319.0	Wetland Mitigation Site
					<hr/> 319.0	

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**SP-0006(29)229**  
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Version: 1

10 - ROADWAY

Alt Group: 0 Alt #: 0

Item Number	Description					Use Qty	Unit
028220020	Right-of-Way Fence, Type B (Metal Post)					4,705	m
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
RD-10	11+100.000	23.04 LT	11+118.800	31.00 LT	19.1		
RD-10	11+201.300	23.34 LT	11+400.000	21.04 LT	201.0		
RD-10	11+340.000	21.04 LT	11+340.000	24.30 LT	3.26		
RD-11	11+400.000	21.04 LT	11+482.000	18.00 LT	80.24		
RD-11	11+541.400	21.04 LT	11+587.100	21.04 LT	45.7		
RD-11	11+595.800	21.04 LT	11+654.700	21.04 RT	58.9		
RD-11	11+666.100	21.04 LT	11+687.000	21.34 LT	20.9		
RD-11	11+678.700	25.81 RT	11+677.000	31.76 RT	6.19		
RD-11	11+696.100	25.81 RT	11+699.000	30.82 RT	5.79		
RD-12	11+754.900	21.34 LT	11+756.100	22.50 LT	3.41		
RD-12	11+761.200	22.50 LT	11+981.900	24.34 LT	228.79		
RD-13	12+017.600	24.34 LT	12+274.100	28.00 LT	254.93		
RD-13	12+273.900	21.04 LT	12+300.000	21.04 LT	26.1		
RD-14	12+300.000	21.04 LT	12+480.000	21.04 LT	180.0		
RD-14	12+486.000	21.04 LT	12+600.000	21.04 LT	114.0		
RD-15	12+600.000	21.04 LT	12+672.000	24.34 LT	75.3		
RD-15	12+743.000	24.04 LT	12+844.400	24.34 LT	108.9		
RD-15	12+870.000	21.04 LT	12+900.000	21.04 LT	30.0		
RD-16	12+900.000	21.04 LT	13+040.000	21.04 LT	140.0		
RD-16	13+045.900	21.04 LT	13+126.000	21.04 LT	80.1		
RD-16	13+064.800	21.04 LT	13+064.800	24.34 LT	3.3		
RD-16	13+132.000	21.04 LT	13+200.000	21.04 LT	68.0		
RD-17	13+200.000	21.04 LT	13+393.000	27.95 LT	197.57		
RD-17	13+420.000	21.04 LT	13+500.000	30.80 LT	83.83		
RD-17	13+471.000	33.00 LT	13+478.000	30.80 LT	7.34		
RD-18	13+500.000	24.52 LT	13+511.800	21.04 LT	12.3		
RD-18	13+500.000	30.80 LT	13+609.000	30.80 LT	113.15		
RD-18	13+615.000	30.80 LT	13+703.700	30.80 LT	88.7		
RD-18	13+770.900	21.04 LT	13+800.000	21.04 LT	29.1		
RD-19	13+800.000	21.04 LT	13+897.000	26.24 LT	102.05		
RD-19	13+903.000	25.66 LT	14+017.300	21.04 LT	110.22		
RD-19	14+032.400	21.04 LT	14+055.200	21.04 LT	22.8		
RD-19	14+063.500	22.04 LT	14+100.000	22.04 LT	36.5		
RD-20	14+100.000	22.04 LT	14+349.100	22.03 LT	229.85		
RD-3	9+034.300	14.85 LT	9+125.300	14.85 LT	91.0		
RD-4	9+434.200	25.50 LT	9+600.000	21.04 LT	169.2		
RD-5	9+600.000	21.04 LT	9+900.000	21.04 LT	300.0		

# Detailed Report

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## SR-6; PRICE TO WELLINGTON

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-5	9+651.200	25.50 LT	9+653.800	21.04 LT	5.16	
RD-5	9+729.700	27.00 LT	9+730.900	21.04 LT	6.08	
RD-6	9+900.000	21.04 LT	10+200.000	21.04 LT	300.0	
RD-7	10+200.000	21.04 LT	10+235.100	98.33 LT	144.82	
RD-7	10+242.700	106.06 LT	10+380.400	21.04 LT	233.45	
RD-7	10+385.200	21.04 LT	10+500.000	21.04 LT	73.7	
RD-8	10+500.000	21.04 LT	10+692.600	21.04 LT	192.6	
RD-8	10+698.600	21.04 LT	10+800.000	21.04 LT	101.4	
RD-9	10+800.000	21.04 LT	11+100.000	23.04 LT	300.14	
					<hr/> 4,704.87	

### 028220075 Right-of-Way Gate 2.4 m

4 Each

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-11	11+444.170	21.04 LT			1.0	
RD-11	11+446.570	21.04 LT			1.0	
RD-7	10+381.600	21.04 LT			1.0	
RD-7	10+384.000	21.04 LT			1.0	
					<hr/> 4.0	

### 028220080 Right-of-Way Gate 3.0 m

8 Each

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-12	11+758.100	21.04 LT			1.0	
RD-12	11+761.100	21.04 LT			1.0	
RD-13	12+214.500	21.04 LT			1.0	
RD-13	12+217.500	21.04 LT			1.0	
RD-18	13+610.500	30.80 LT			1.0	
RD-18	13+613.500	30.80 LT			1.0	
RD-8	10+694.100	21.04 LT			1.0	
RD-8	10+697.100	21.04 LT			1.0	
					<hr/> 8.0	

**Detailed Report**  
**SP-0006(29)229**  
**SR-6; PRICE TO WELLINGTON**

**Version: 1**

**10 - ROADWAY**

**Alt Group: 0    Alt #: 0**

Item Number		Description				Use Qty		Unit
<b>028220090</b>		<b>Right-of-Way Gate 4.3 m</b>				<b>3</b>		<b>Each</b>
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment		
RD-10	11+116.650	21.04 LT			1.0			
RD-19	13+913.250	24.67 LT			1.0			
RD-20	14+126.650	31.04 LT			1.0			
					<hr/>			
					3.0			

**Detailed Report**  
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**SR-6; PRICE TO WELLINGTON**

**Version: 1**

**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>028220105</b>	<b>Right-of-Way Brace Post</b>				103	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-10	11+118.800	23.04 LT			1.0	
RD-10	11+201.300	23.04 LT			1.0	
RD-10	11+265.200	21.04 LT			1.0	
RD-10	11+265.200	23.04 LT			1.0	
RD-10	11+340.000	21.04 LT			1.0	
RD-10	11+442.900	21.04 LT			1.0	
RD-10	11+447.800	21.04 LT			1.0	
RD-11	11+477.500	18.00 LT			1.0	
RD-11	11+477.500	21.04 LT			1.0	
RD-11	11+482.000	18.00 LT			1.0	
RD-11	11+541.400	21.04 LT			1.0	
RD-11	11+587.100	21.04 LT			1.0	
RD-11	11+595.800	21.04 LT			1.0	
RD-11	11+654.700	21.04 LT			1.0	
RD-11	11+666.100	21.04 LT			1.0	
RD-11	11+677.000	31.76 RT			1.0	
RD-11	11+678.700	25.81 RT			1.0	
RD-11	11+687.200	21.04 LT			1.0	
RD-11	11+687.200	21.34 LT			1.0	
RD-11	11+696.100	25.81 RT			1.0	
RD-11	11+699.000	30.82 RT			1.0	
RD-12	11+754.900	21.34 LT			1.0	
RD-12	11+755.100	21.04 LT			1.0	
RD-12	11+756.600	21.04 LT			1.0	
RD-12	11+762.600	21.04 LT			1.0	
RD-12	11+984.900	21.04 LT			1.0	
RD-13	12+020.500	21.04 LT			1.0	
RD-13	12+170.500	21.04 LT			1.0	
RD-13	12+213.000	21.04 LT			1.0	
RD-13	12+219.000	21.04 LT			1.0	
RD-13	12+267.300	21.04 LT			1.0	
RD-13	12+273.900	21.04 LT			1.0	
RD-14	12+377.000	21.04 LT			1.0	
RD-14	12+480.000	21.04 LT			1.0	
RD-14	12+486.000	21.04 LT			1.0	
RD-14	12+579.000	21.04 LT			1.0	
RD-15	12+672.000	21.04 LT			1.0	

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## SR-6; PRICE TO WELLINGTON

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-15	12+743.000	21.34 LT			1.0	
RD-15	12+845.200	21.04 LT			1.0	
RD-15	12+870.000	21.04 LT			1.0	
RD-16	12+955.000	21.04 LT			1.0	
RD-16	13+040.000	21.04 LT			1.0	
RD-16	13+045.900	21.04 LT			1.0	
RD-16	13+064.800	21.04 LT			1.0	
RD-16	13+126.000	21.04 LT			1.0	
RD-16	13+132.000	21.04 LT			1.0	
RD-17	13+261.000	21.04 LT			1.0	
RD-17	13+312.610	21.04 LT			1.0	
RD-17	13+393.000	27.95 LT			1.0	
RD-17	13+420.000	21.04 LT			1.0	
RD-17	13+443.810	21.04 LT			1.0	
RD-17	13+454.360	30.80 LT			1.0	
RD-18	13+540.000	30.80 LT			1.0	
RD-18	13+609.000	30.80 LT			1.0	
RD-18	13+615.000	30.80 LT			1.0	
RD-18	13+703.800	30.80 LT			1.0	
RD-18	13+770.900	21.04 LT			1.0	
RD-19	13+849.900	21.04 LT			1.0	
RD-19	13+849.900	26.06 LT			1.0	
RD-19	13+895.500	26.39 LT			1.0	
RD-19	13+911.143	24.88 LT			1.0	
RD-19	13+915.520	24.56 LT			1.0	
RD-19	13+951.100	21.04 LT			1.0	
RD-19	14+017.300	21.04 LT			1.0	
RD-19	14+032.400	21.04 LT			1.0	
RD-19	14+055.200	21.04 LT			1.0	
RD-19	14+063.230	28.57 LT			1.0	
RD-19	14+065.800	31.03 LT			1.0	
RD-20	14+124.450	31.04 LT			1.0	
RD-20	14+128.650	31.04 LT			1.0	
RD-20	14+226.100	31.04 LT			1.0	
RD-20	14+343.190	31.04 LT			1.0	
RD-20	14+348.438	23.50 LT			1.0	
RD-20	14+349.275	22.26 LT			1.0	
RD-3	9+034.300	14.85 LT			1.0	
RD-3	9+125.300	14.85 LT			1.0	
RD-4	9+432.600	21.04 LT			1.0	
RD-4	9+434.200	25.50 LT			1.0	

# Detailed Report

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## SR-6; PRICE TO WELLINGTON

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-4	9+582.600	21.04 LT			1.0	
RD-5	9+651.200	25.00 LT			1.0	
RD-5	9+653.800	21.04 LT			1.0	
RD-5	9+730.900	21.04 LT			1.0	
RD-5	9+880.900	21.04 LT			1.0	
RD-6	10+030.900	21.04 LT			1.0	
RD-6	10+180.900	21.04 LT			1.0	
RD-7	10+235.100	98.33 LT			1.0	
RD-7	10+241.900	91.38 LT			1.0	
RD-7	10+242.700	106.06 LT			1.0	
RD-7	10+249.400	98.35 LT			1.0	
RD-7	10+256.100	21.04 LT			1.0	
RD-7	10+264.900	33.22 LT			1.0	
RD-7	10+275.100	33.20 LT			1.0	
RD-7	10+286.500	21.04 LT			1.0	
RD-7	10+380.400	21.04 LT			1.0	
RD-7	10+385.200	21.04 LT			1.0	
RD-7	10+436.500	21.04 LT			1.0	
RD-8	10+586.500	21.04 LT			1.0	
RD-8	10+692.600	21.04 LT			1.0	
RD-8	10+698.600	21.04 LT			1.0	
RD-8	10+736.500	21.04 LT			1.0	
RD-9	10+868.800	21.04 LT			1.0	
RD-9	10+882.600	23.04 LT			1.0	
RD-9	11+032.600	23.04 LT			1.0	
					<hr/> 103.0	

**Detailed Report**  
**SP-0006(29)229**  
**SR-6; PRICE TO WELLINGTON**

**Version: 1**

**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description					Use Qty	Unit
<b>02822011*</b>	<b>Temporary Fence</b>					3,200	m
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
RD-10	11+100.000	31.00 LT	11+124.300	31.00 LT	24.3		
RD-10	11+130.800	31.00 LT	11+400.000	24.30 LT	277.54		
RD-11	11+400.000	24.30 LT	11+482.000	24.30 LT	82.0		
RD-11	11+541.000	25.00 LT	11+685.000	24.00 LT	151.0		
RD-12	11+761.000	22.50 LT	11+982.000	24.34 LT	222.84		
RD-13	12+018.000	24.34 LT	12+274.000	28.00 LT	265.42		
RD-15	12+743.000	24.34 LT	12+844.000	24.34 LT	101.0		
RD-17	13+471.000	33.00 LT	13+500.000	33.00 LT	29.0		
RD-18	13+500.000	33.00 LT	13+608.000	33.00 LT	108.0		
RD-3	9+034.000	19.30 LT	9+125.000	19.30 LT	91.0		
RD-3	9+215.000	19.30 LT	9+300.000	19.30 LT	85.0		
RD-4	9+300.000	19.30 LT	9+311.000	19.30 LT	11.0		
RD-4	9+318.000	19.30 LT	9+410.000	19.25 LT	92.0		
RD-4	9+434.000	25.50 LT	9+600.000	25.50 LT	166.0		
RD-5	9+600.000	25.50 LT	9+900.000	25.50 LT	302.96		
RD-6	9+900.000	25.50 LT	10+200.000	31.00 LT	305.5		
RD-7	10+200.000	31.00 LT	10+262.900	31.00 LT	62.9		
RD-7	10+277.600	31.00 LT	10+500.000	31.00 LT	222.4		
RD-8	10+500.000	31.00 LT	10+800.000	31.00 LT	300.0		
RD-9	10+800.000	31.00 LT	11+100.000	31.00 LT	300.0		
					3,199.86		



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**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>028420010</b>	<b>Delineator Type I</b>				104	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-1	8+500.000	LT	8+700.000	LT	5.0	
SS-1	8+500.000	RT	8+700.000	RT	5.0	
SS-10	11+100.000	LT	11+400.000	LT	2.0	
SS-10	11+100.000	RT	11+400.000	RT	2.0	
SS-11	11+400.000	LT	11+700.000	LT	2.0	
SS-11	11+400.000	RT	11+700.000	RT	2.0	
SS-12	11+700.000	LT	12+000.000	LT	3.0	
SS-12	11+700.000	RT	12+000.000	RT	3.0	
SS-13	12+000.000	LT	12+300.000	LT	3.0	
SS-13	12+000.000	RT	12+300.000	RT	3.0	
SS-14	12+300.000	LT	12+600.000	LT	2.0	
SS-14	12+300.000	RT	12+600.000	RT	2.0	
SS-15	12+600.000	LT	12+900.000	LT	3.0	
SS-15	12+600.000	RT	12+900.000	RT	3.0	
SS-16	12+900.000	LT	13+200.000	LT	1.0	
SS-16	12+900.000	RT	13+200.000	RT	1.0	
SS-17	13+200.000	LT	13+500.000	LT	3.0	
SS-17	13+200.000	RT	13+500.000	RT	3.0	
SS-18	13+500.000	LT	13+800.000	LT	2.0	
SS-18	13+500.000	RT	13+800.000	RT	2.0	
SS-19	13+800.000	LT	14+100.000	RT	2.0	
SS-19	13+800.000	RT	14+100.000	RT	2.0	
SS-2	8+700.000	RT	9+000.000	RT	2.0	
SS-20	14+100.000	LT	14+353.000	LT	2.0	
SS-20	14+100.000	RT	14+400.000	RT	3.0	
SS-21	14+400.000	RT	14+563.000	RT	3.0	
SS-3	9+000.000	RT	9+300.000	RT	3.0	
SS-4	9+300.000	RT	9+600.000	RT	4.0	
SS-4	9+439.000	LT	9+600.000	LT	3.0	
SS-5	9+600.000	LT	9+900.000	LT	4.0	
SS-5	9+600.000	RT	9+900.000	RT	4.0	
SS-6	9+900.000	LT	10+200.000	LT	4.0	
SS-6	9+900.000	RT	10+200.000	RT	4.0	
SS-7	10+200.000	LT	10+500.000	LT	2.0	
SS-7	10+200.000	RT	10+500.000	RT	2.0	
SS-8	10+500.000	LT	10+800.000	LT	3.0	
SS-8	10+500.000	RT	10+800.000	RT	3.0	

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Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-9	10+800.000	LT	11+100.000	LT	1.0	
SS-9	10+800.000	RT	11+100.000	RT	1.0	
					<hr/> 104.0	

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**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>028420030</b>	<b>Delineator - Culvert Marker</b>				33	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-10	10+250.000	RT			1.0	
SS-10	11+249.000	LT			1.0	
SS-12	11+841.000	LT			1.0	
SS-12	11+851.000	RT			1.0	
SS-13	12+038.000	LT			1.0	
SS-13	12+041.000	RT			1.0	
SS-14	12+454.000	LT			1.0	
SS-14	12+454.000	RT			1.0	
SS-16	13+020.000	LT			1.0	
SS-16	13+020.000	RT			1.0	
SS-17	13+312.000	LT			1.0	
SS-17	13+312.000	RT			1.0	
SS-17	13+443.000	RT			1.0	
SS-17	13+444.000	LT			1.0	
SS-18	13+558.000	LT			1.0	
SS-18	13+559.000	RT			1.0	
SS-19	13+850.000	RT			1.0	
SS-19	13+851.000	LT			1.0	
SS-2	8+730.000	RT			1.0	
SS-2	8+836.000	RT			1.0	
SS-2	8+913.000	RT			1.0	
SS-20	14+340.000	LT			1.0	
SS-20	14+340.000	RT			1.0	
SS-21	14+480.000	RT			1.0	
SS-4	9+405.000	RT			1.0	
SS-6	9+963.000	LT			1.0	
SS-6	9+963.000	RT			1.0	
SS-7	10+341.000	LT			1.0	
SS-7	10+342.000	RT			1.0	
SS-8	10+609.000	LT			1.0	
SS-8	10+609.000	RT			1.0	
SS-9	10+883.000	LT			1.0	
SS-9	10+883.000	RT			1.0	
					33.0	

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**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number		Description				Use Qty	Unit
<b>028960020</b>		<b>Right-of-Way Markers</b>				54	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
RD-1	8+575.514	31.709 RT			1.0		
RD-1	8+658.010	15.851 RT			1.0		
RD-10	11+100.000	23.336 LT			1.0		
RD-10	11+265.548	21.336 LT			1.0		
RD-10	11+265.548	23.336 LT			1.0		
RD-11	11+477.757	18.000 LT			1.0		
RD-11	11+477.757	21.336 LT			1.0		
RD-11	11+483.713	16.452 RT			1.0		
RD-11	11+497.340	30.752 RT			1.0		
RD-11	11+541.372	18.000 LT			1.0		
RD-11	11+541.372	21.336 LT			1.0		
RD-12	11+725.785	30.769 RT			1.0		
RD-12	11+733.340	16.368 RT			1.0		
RD-12	11+800.000	21.336 LT			1.0		
RD-12	12+000.000	21.336 LT			1.0		
RD-13	12+200.000	21.336 LT			1.0		
RD-14	12+400.000	21.336 LT			1.0		
RD-15	12+600.000	21.336 LT			1.0		
RD-15	12+800.000	21.336 LT			1.0		
RD-16	13+000.000	21.336 LT			1.0		
RD-16	13+200.000	21.336 LT			1.0		
RD-17	13+312.604	21.336 LT			1.0		
RD-17	13+394.491	28.345 LT			1.0		
RD-17	13+443.688	21.336 LT			1.0		
RD-17	13+454.243	31.103 LT			1.0		
RD-18	13+711.338	21.336 LT			1.0		
RD-18	13+711.338	31.103 LT			1.0		
RD-19	13+849.622	21.336 LT			1.0		
RD-19	13+849.834	26.364 LT			1.0		
RD-19	13+898.816	26.364 LT			1.0		
RD-19	13+951.115	21.336 LT			1.0		
RD-19	14+017.234	18.300 LT			1.0		
RD-19	14+017.235	21.336 LT			1.0		
RD-19	14+032.475	18.300 LT			1.0		
RD-19	14+032.476	21.336 LT			1.0		
RD-19	14+055.297	21.336 LT			1.0		
RD-19	14+065.809	31.337 LT			1.0		

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Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-2	8+758.375	14.656 RT			1.0	
RD-20	14+254.385	31.337 LT			1.0	
RD-20	14+344.413	31.337 LT			1.0	
RD-20	14+353.052	16.020 LT			1.0	
RD-21	14+484.309	16.640 LT			1.0	
RD-4	9+403.685	15.513 RT			1.0	
RD-4	9+432.820	21.336 LT			1.0	
RD-5	9+684.404	21.336 LT			1.0	
RD-5	9+882.062	21.336 LT			1.0	
RD-6	10+000.000	21.336 LT			1.0	
RD-6	10+166.349	21.336 LT			1.0	
RD-7	10+255.958	21.336 LT			1.0	
RD-7	10+286.679	21.336 LT			1.0	
RD-8	10+500.000	21.336 LT			1.0	
RD-8	10+700.000	21.336 LT			1.0	
RD-9	10+868.794	21.336 LT			1.0	
RD-9	10+882.589	23.336 LT			1.0	
					<hr/> 54.0	

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**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>029610030</b>	<b>Rotomilling - 50 mm</b>				38,041	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-1	8+500.000		8+700.000		2,450.0	
RD-10	11+100.000		11+400.000		2,158.0	
RD-11	11+400.000		11+700.000		2,158.0	
RD-12	11+700.000		12+000.000		2,159.0	
RD-13	12+000.000		12+300.000		2,159.0	
RD-14	12+300.000		12+600.000		2,159.0	
RD-15	12+600.000		12+900.000		2,159.0	
RD-16	12+900.000		13+200.000		2,159.0	
RD-17	13+200.000		13+500.000		39.0	
RD-2	8+700.000		9+000.000		3,240.0	
RD-3	9+000.000		9+300.000		3,240.0	
RD-4	9+300.000		9+600.000		3,168.0	
RD-5	9+600.000		9+900.000		2,160.0	
RD-6	9+900.000		10+200.000		2,159.0	
RD-7	10+200.000		10+500.000		2,158.0	
RD-8	10+500.000		10+800.000		2,158.0	
RD-9	10+800.000		11+100.000		2,158.0	
					38,041.0	
<b>032110010</b>	<b>Reinforcing Steel - Coated</b>				993	kg
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DR-2	8+836.000	12.22 LT			100.0	
DR-2	8+913.000	12.22 LT			81.0	
DR-21	14+480.000	12.22 LT			96.0	
DR-21	14+480.000	17.24 LT			81.0	
DR-21	14+608.000	12.22 LT			81.0	
DR-22	14+735.000	12.22 LT			81.0	
DR-22	14+735.000	12.22 RT			96.0	
DR-22	14+825.000	12.22 LT			81.0	
DR-22	14+825.000	12.22 RT			130.0	
DR-4	9+406.100	12.22 LT			85.0	
DR-4	9+409.830	15.95 LT			81.0	
					993.0	

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**Version: 1**

**10 - ROADWAY**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>033100020</b>	<b>Concrete - Small Structure</b>				16	m3
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DR-2	8+836.000	12.22 LT			1.36	
DR-2	8+913.000	12.22 LT			1.04	
DR-21	14+480.000	12.22 LT			1.26	
DR-21	14+480.000	17.24 LT			1.04	
DR-21	14+608.000	12.22 LT			1.04	
DR-21	14+608.000	12.22 RT			2.75	
DR-22	14+735.000	12.22 LT			1.04	
DR-22	14+735.000	12.22 RT			1.26	
DR-22	14+825.000	12.22 LT			1.04	
DR-22	14+825.000	12.22 RT			1.79	
DR-4	9+406.100	12.22 LT			1.15	
DR-4	9+409.830	15.95 LT			1.04	
					<hr/> 15.81	

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30 - LANDSCAPING

Alt Group: 0 Alt #: 0

Item Number	Description				Use Qty	Unit
<b>029110020</b>	<b>Straw Mulch</b>				5	ha
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DT-0	MITIGATION				0.46	Wetland Mitigation Site
RD-1	8+500.000	LT	8+700.000	LT	0.11	
RD-1	8+500.000	RT	8+700.000	RT	0.06	
RD-10	11+100.000	LT	11+400.000	LT	0.13	
RD-10	11+100.000	RT	11+400.000	RT	0.02	
RD-11	11+400.000	LT	11+700.000	LT	0.08	
RD-11	11+400.000	RT	11+700.000	RT	0.09	
RD-12	11+700.000	LT	12+000.000	LT	0.04	
RD-12	11+700.000	RT	12+000.000	RT	0.09	
RD-13	12+000.000	LT	12+300.000	LT	0.05	
RD-13	12+000.000	RT	12+300.000	RT	0.15	
RD-14	12+300.000	LT	12+600.000	LT	0.07	
RD-14	12+300.000	RT	12+600.000	RT	0.09	
RD-15	12+600.000	LT	12+900.000	LT	0.03	
RD-15	12+600.000	RT	12+900.000	RT	0.05	
RD-16	12+900.000	LT	13+200.000	LT	0.06	
RD-16	12+900.000	RT	13+200.000	RT	0.14	
RD-17	13+200.000	LT	13+500.000	LT	0.12	
RD-17	13+200.000	RT	13+500.000	RT	0.25	
RD-18	13+500.000	LT	13+800.000	LT	0.17	
RD-18	13+500.000	RT	13+800.000	RT	0.2	
RD-19	13+800.000	LT	14+100.000	LT	0.16	
RD-19	13+800.000	RT	14+100.000	RT	0.14	
RD-2	8+700.000	LT	9+000.000	LT	0.04	
RD-2	8+700.000	RT	9+000.000	RT	0.18	
RD-20	14+100.000	LT	14+400.000	LT	0.3	
RD-20	14+100.000	RT	14+400.000	RT	0.23	
RD-21	14+400.000	RT	14+700.000	RT	0.05	
RD-22	14+700.000	RT	14+912.655	RT	0.05	
RD-3	9+000.000	LT	9+300.000	LT	0.02	
RD-3	9+000.000	RT	9+300.000	RT	0.06	
RD-4	9+300.000	RT	9+600.000	RT	0.1	
RD-4	9+430.000	LT	9+600.000	LT	0.07	
RD-5	9+600.000	LT	9+900.000	LT	0.11	
RD-5	9+600.000	RT	9+900.000	RT	0.02	
RD-6	9+900.000	LT	10+200.000	LT	0.12	
RD-6	9+900.000	RT	10+200.000	RT	0.05	



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Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-7	10+200.000	LT	10+500.000	LT	0.1	INCLUDES 2000 EAST
RD-7	10+200.000	RT	10+500.000	RT	0.02	
RD-8	10+500.000	LT	10+800.000	LT	0.07	
RD-8	10+500.000	RT	10+800.000	RT	0.02	
RD-9	10+800.000	LT	11+100.000	LT	0.15	
RD-9	10+800.000	RT	11+100.000	RT	0.02	
					<hr/>	
					4.54	

### 02912003\* Strip and Stockpile Topsoil (Plan Quantity)

5,017 m3

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DT-0	MITIGATION				917.0	Wetland Mitigation Site
SR-6	8+500		14+913		4,100.0	
					<hr/>	
					5,017.0	

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**30 - LANDSCAPING**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>02912004*</b>	<b>Spread Stockpiled Topsoil (Plan Quantity)</b>				46,000	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DT-0	MITIGATION				4,583.0	Wetland Mitigation Site
RD-1	8+500.000	LT	8+700.000	LT	1,072.7	
RD-1	8+500.000	RT	8+700.000	RT	559.5	
RD-10	11+100.000	LT	11+400.000	LT	1,334.7	
RD-10	11+100.000	RT	11+400.000	RT	215.7	
RD-11	11+400.000	LT	11+700.000	LT	756.4	
RD-11	11+400.000	RT	11+700.000	RT	910.4	
RD-12	11+700.000	LT	12+000.000	LT	401.7	
RD-12	11+700.000	RT	12+000.000	RT	861.9	
RD-13	12+000.000	LT	12+300.000	LT	532.8	
RD-13	12+000.000	RT	12+300.000	RT	1,456.6	
RD-14	12+300.000	LT	12+600.000	LT	680.1	
RD-14	12+300.000	RT	12+600.000	RT	928.4	
RD-15	12+600.000	LT	12+900.000	LT	320.0	
RD-15	12+600.000	RT	12+900.000	RT	512.9	
RD-16	12+900.000	LT	13+200.000	LT	553.4	
RD-16	12+900.000	RT	13+200.000	RT	1,393.6	
RD-17	13+200.000	LT	13+500.000	LT	1,154.8	
RD-17	13+200.000	RT	13+500.000	RT	2,504.6	
RD-18	13+500.000	LT	13+800.000	LT	1,684.6	
RD-18	13+500.000	RT	13+800.000	RT	1,954.4	
RD-19	13+800.000	LT	14+100.000	LT	1,621.1	
RD-19	13+800.000	RT	14+100.000	RT	1,438.9	
RD-2	8+700.000	LT	9+000.000	LT	361.1	
RD-2	8+700.000	RT	9+000.000	RT	1,807.3	
RD-20	14+100.000	LT	14+400.000	LT	2,998.2	
RD-20	14+100.000	RT	14+400.000	RT	2,334.6	
RD-21	14+400.000	RT	14+700.000	RT	522.4	
RD-22	14+700.000	RT	14+912.655	RT	521.8	
RD-3	9+000.000	LT	9+300.000	LT	210.9	
RD-3	9+000.000	RT	9+300.000	RT	585.9	
RD-4	9+300.000	RT	9+600.000	RT	975.3	
RD-4	9+430.000	LT	9+600.000	LT	725.7	
RD-5	9+600.000	LT	9+900.000	LT	1,114.8	
RD-5	9+600.000	RT	9+900.000	RT	248.7	
RD-6	9+900.000	LT	10+200.000	LT	1,197.9	
RD-6	9+900.000	RT	10+200.000	RT	484.1	

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Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-7	10+200.000	LT	10+500.000	LT	961.1	INCLUDES 2000 EAST
RD-7	10+200.000	RT	10+500.000	RT	173.3	
RD-8	10+500.000	LT	10+800.000	LT	701.9	
RD-8	10+500.000	RT	10+800.000	RT	182.8	
RD-9	10+800.000	LT	11+100.000	LT	1,537.1	
RD-9	10+800.000	RT	11+100.000	RT	184.5	
					<hr/> 45,261.6	

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**30 - LANDSCAPING**

**Alt Group: 0 Alt #: 0**

Item Number		Description				Use Qty	Unit
<b>029220010</b>		<b>Drill Seed</b>				3	ha
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
RD-1	8+500.000	LT	8+700.000	LT	0.11		
RD-1	8+500.000	RT	8+700.000	RT	0.02		
RD-10	11+100.000	LT	11+400.000	LT	0.1		
RD-10	11+100.000	RT	11+400.000	RT	0.02		
RD-11	11+400.000	LT	11+700.000	LT	0.07		
RD-11	11+400.000	RT	11+700.000	RT	0.05		
RD-12	11+700.000	LT	12+000.000	LT	0.04		
RD-12	11+700.000	RT	12+000.000	RT	0.08		
RD-13	12+000.000	RT	12+300.000	RT	0.15		
RD-14	12+300.000	LT	12+600.000	LT	0.06		
RD-14	12+300.000	RT	12+600.000	RT	0.09		
RD-15	12+600.000	LT	12+900.000	LT	0.03		
RD-15	12+600.000	RT	12+900.000	RT	0.05		
RD-16	12+900.000	LT	13+200.000	LT	0.06		
RD-16	12+900.000	RT	13+200.000	RT	0.14		
RD-17	13+200.000	LT	13+500.000	LT	0.08		
RD-17	13+200.000	RT	13+500.000	RT	0.25		
RD-18	13+500.000	RT	13+800.000	RT	0.18		
RD-19	13+800.000	LT	14+100.000	LT	0.13		
RD-19	13+800.000	RT	14+100.000	RT	0.11		
RD-2	8+700.000	LT	9+000.000	LT	0.03		
RD-2	8+700.000	RT	9+000.000	RT	0.02		
RD-20	14+100.000	RT	14+400.000	RT	0.23		
RD-21	14+400.000	RT	14+700.000	RT	0.05		
RD-22	14+700.000	RT	14+912.655	RT	0.05		
RD-3	9+000.000	LT	9+300.000	LT	0.02		
RD-4	9+430.000	LT	9+600.000	LT	0.07		
RD-5	9+600.000	LT	9+900.000	LT	0.11		
RD-5	9+600.000	RT	9+900.000	RT	0.02		
RD-6	9+900.000	LT	10+200.000	LT	0.12		
RD-6	9+900.000	RT	10+200.000	RT	0.05		
RD-7	10+200.000	LT	10+500.000	LT	0.1	INCLUDES 2000 EAST	
RD-7	10+200.000	RT	10+500.000	RT	0.02		
RD-8	10+500.000	LT	10+800.000	LT	0.07		
RD-8	10+500.000	RT	10+800.000	RT	0.02		
RD-9	10+800.000	LT	11+100.000	LT	0.15		

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Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-9	10+800.000	RT	11+100.000	RT	0.02	
					<hr/>	
					2.97	

### 029220040 Broadcast Seed

114 100•m2

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
RD-1	8+500.000	RT	8+700.000	RT	3.11	
RD-10	11+100.000	LT	11+400.000	LT	3.29	
RD-11	11+400.000	LT	11+700.000	LT	1.03	
RD-11	11+400.000	RT	11+700.000	RT	3.73	
RD-12	11+700.000	RT	12+000.000	RT	0.48	
RD-13	12+000.000	LT	12+300.000	LT	5.33	
RD-14	12+300.000	LT	12+600.000	LT	4.83	
RD-17	13+200.000	LT	13+500.000	LT	4.02	
RD-18	13+500.000	LT	13+800.000	LT	16.85	
RD-18	13+500.000	RT	13+800.000	RT	1.43	
RD-19	13+800.000	LT	14+100.000	LT	3.6	
RD-19	13+800.000	RT	14+100.000	RT	3.39	
RD-2	8+700.000	LT	9+000.000	LT	0.66	
RD-2	8+700.000	RT	9+000.000	RT	16.39	
RD-20	14+100.000	LT	14+400.000	LT	29.98	
RD-3	9+000.000	RT	9+300.000	RT	5.86	
RD-4	9+300.000	RT	9+600.000	RT	9.75	
					<hr/>	
					113.73	

### 02922005\* Broadcast Seed - Wetland Zone 1

26 100•m2

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
DT-0	MITIGATION				25.13	Wetland Mitigation Site
RD-11	11+654	LT	11+662	LT	0.08	
RD-11	11+679	RT	11+694	RT	0.32	
RD-2	8+734.0	RT	8+743	RT	0.14	
RD-2	8+735.0	LT	8+739.0	LT	0.04	
					<hr/>	
					25.71	

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Item Number	Description					Use Qty	Unit
<b>02922006*</b>	<b>Broadcast Seed - Wetland Zone 3</b>					11	100•m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
DT-0	MITIGATION				10.3	Wetland Mitigation Site	
					10.3		
<b>029220060</b>	<b>Turf Sod</b>					2,800	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
RD-11	11+400.000	LT	11+700.000	LT	100.0		
RD-16	12+900.000	LT	13+200.000	LT	57.95		
RD-2	8+700.000	LT	9+000.000	LT	840.14		
RD-21	14+400.000	LT	14+700.000	LT	733.86		
RD-22	14+700.000	LT	14+912.655	LT	513.85		
RD-3	9+000.000	LT	9+300.000	LT	391.81		
RD-4	9+430.000	LT	9+600.000	LT	60.34		
					2,697.95		
<b>029380010</b>	<b>Tree Pruning</b>					8	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
					4.0		
RD-21	14+564.000	17.3 LT			1.0		
RD-21	14+569.000	17.5 LT			1.0		
RD-21	14+574.000	17.3 LT			1.0		
RD-21	14+579.000	17.4 LT			1.0		
					8.0		

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Item Number		Description				Use Qty	Unit
<b>018910010</b>		<b>Move Street Sign</b>				2	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment	
SS-21	14+582.000	12 RT	14+582.000	RT	1.0	STREET NAME AND STOP SIGNS	
SS-22	14+845.000	16 LT	14+845.000	LT	1.0	STREET NAME AND STOP SIGNS	
					2.0		

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**40 - SIGNING**

**Alt Group: 0 Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>028910005</b>	<b>Remove Sign</b>				39	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-1					1.0	MERGE SIGN - PRIOR TO BEGIN PROJECT
SS-1	8+539.000	13 LT			1.0	LEFT TURN AND SPEED SIGN
SS-1	8+556.000	20 RT			1.0	"MILE 243" SIGN
SS-11	11+672.000	8 RT			1.0	"MILE 245" SIGN
SS-17	13+286.000	10 RT			1.0	"MILE 246" SIGN
SS-17	13+391.000	14 LT			1.0	STREET NAME SIGNS
SS-17	13+395.000	14 LT			1.0	STOP SIGN
SS-17	13+397.000	LT			1.0	PIT SIGN
SS-19	13+801.000	14 RT			1.0	DESTINATION SIGN
SS-19	14+053.000	11 LT			1.0	STOP SIGN
SS-19	14+079.000	9 RT			1.0	SPEED SIGN
SS-2	8+727.000	LT			1.0	DIRECTIONAL SIGN
SS-2	8+761.000	10 RT			1.0	DISTANCE SIGN
SS-2	8+816.000	9 RT			1.0	SPEED LIMIT SIGN
SS-20	14+259.000	9 RT			1.0	SPEED LIMIT SIGN
SS-21	14+431.000	6 RT			1.0	SPEED LIMIT SIGN
SS-21	14+432.000	12 LT			1.0	SPEED LIMIT SIGN
SS-21	14+566.000	15 RT			1.0	RAILROAD CROSSING SIGN
SS-21	14+689.000	9 RT			1.0	SCHOOL CROSSING SIGN
SS-21	14+690.000	14 LT			1.0	SCHOOL CROSSING SIGN
SS-22					2.0	SCHOOL CROSSING SIGNS
SS-22					1.0	LANE DROP SIGN - 205 m BEYOND END PROJECT
SS-22	14+767.000	14 LT			1.0	SCHOOL CROSSING SIGN
SS-22	14+768.000	8 RT			1.0	SCHOOL CROSSING SIGN
SS-22	14+828.000	14 LT			1.0	SCHOOL CROSSING SIGN
SS-22	14+843.000	9 RT			1.0	SCHOOL CROSSING SIGN
SS-22	14+862.000	10 RT			1.0	SCHOOL CROSSING SIGN
SS-22	14+881.000	13 LT			1.0	SCHOOL CROSSING SIGN
SS-22	14+900.000	16 LT			1.0	"MILE 247" SIGN
SS-3	9+128.000	10 RT			1.0	DISTANCE SIGN
SS-4	9+375.000	22 RT			1.0	RAILROAD CROSSING SIGN
SS-4	9+392.000	21 RT			1.0	STOP SIGN
SS-4	9+417.000	LT			1.0	STOP SIGN
SS-4	9+432.000	14 LT			1.0	STREET NAME SIGNS
SS-6	10+059.000	14 RT			1.0	"MILE 244" SIGN
SS-7	10+315.000	15 LT			1.0	STOP SIGN
SS-7	10+329.000	14 LT			1.0	STREET NAME SIGNS



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Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-7	10+372.000	17 RT			1.0	STOP SIGN
					39.0	

### 028910010 Relocate Sign

13 Each

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-1	8+544.000	14 RT	8+544.000	RT	1.0	ADOPT A HIGHWAY
SS-1	8+580.000	13 LT	8+580.000	LT	1.0	ADOPT A HIGHWAY
SS-1	8+624.000	11 RT	8+624.000	RT	1.0	LITTERING FINE
SS-12	11+704.000	7 RT	11+704.000	RT	1.0	ADOPT A HIGHWAY
SS-12	11+704.000	8 LT	11+704.000	LT	1.0	ADOPT A HIGHWAY
SS-19	14+053.000	11 LT	14+053.000	LT	2.0	STREET NAME SIGNS
SS-2	8+925.000	LT	8+925.000	LT	1.0	COLLEGE OF EASTERN UTAH
SS-20	14+346.000	10 LT	14+346.000	LT	1.0	ADOPT A HIGHWAY
SS-3	9+064.000	10 LT	9+064.000	LT	1.0	OVERHEAD SIGN
SS-3	9+118.000	13 LT	9+118.000	LT	1.0	HIGHWAY PATROL
SS-4	9+375.000	21 RT	9+375.000	RT	2.0	STREET NAME SIGNS
					13.0	

### 028910075 Auxiliary Sign Type A-2

2 m2

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-17	13+391.000	LT			0.5	D3 "US HWY 6"
SS-4	9+435.000	LT			0.5	D3 "US HWY 6"
SS-7	10+282.000	LT			0.5	D3 "US HWY 6"
					1.5	

### 028910130 Auxiliary Sign Type P-I

3 m2

Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-1	8+539.000	LT			0.46	W13-1 "45 M.P.H."
SS-19	14+015.000	RT			0.56	"800 FEET"
SS-21	14+689.000	RT			0.46	W16-9p "AHEAD"
SS-22	14+841.000	LT			0.35	W16-7 ARROW
SS-22	14+843.000	RT			0.35	W16-7 ARROW
SS-7	10+215.000	120 LT			0.28	W13-1 "30 M.P.H."
					2.46	

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**40 - SIGNING**

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Item Number	Description				Use Qty	Unit
<b>028910160</b>	<b>Sign Type P-1 610 mm X 762 mm</b>				14	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-17	13+405.000	RT			4.0	W1-8
SS-22	14+828.000	LT			1.0	S5-2
SS-22	14+862.000	RT			1.0	S5-2
SS-4	9+420.000	RT			4.0	W1-8
SS-7	10+270.000	RT			4.0	W1-8
					14.0	
<b>028910170</b>	<b>Sign Type P-1 762 mm X 762 mm</b>				6	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-17					1.0	W2-4 @ 3540 SOUTH
SS-21	14+490.000	RT			1.0	W10-3
SS-21	14+650.000	LT			1.0	W10-3
SS-4					1.0	W2-4 @ OLD WELLINGTON RD
SS-7	10+215.000	LT			1.0	W1-2R
SS-7	2+064.000	LT			1.0	W2-4
					6.0	
<b>028910185</b>	<b>Auxiliary Sign Type P-2</b>				6	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-2	8+727.000	LT			4.06	"VISITOR INFORMATION"
SS-3	9+128.000	RT			1.58	"LAKE POWELL 162"
					5.64	

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**40 - SIGNING**

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Item Number	Description				Use Qty	Unit
<b>02891019P</b>	<b>Sign Type P-1 914 mm X 914 mm</b>				5	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-1					0.84	W4-3 BEFORE BEGIN PROJECT
SS-1	8+539.000	LT			0.84	W1-2L
SS-21	14+566.000	RT			0.66	914mm DIA. W10-1
SS-21	14+689.000	RT			0.84	S1-1
SS-22	14+841.000	LT			0.84	S1-1
SS-22	14+843.000	RT			0.84	S1-1
					4.86	
<b>028910225</b>	<b>Sign Type P-2 762 mm X 762 mm</b>				6	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-17	13+395.000	15 LT			1.0	R1-1
SS-19	14+053.000	11 LT			1.0	R1-1
SS-4	9+392.000	15 RT			1.0	R1-1
SS-4	9+415.000	18 LT			1.0	R1-1
SS-7	10+257.000	16 LT			1.0	R1-1
SS-7	2+033.000	LT			1.0	W3-1A
					6.0	
<b>02891027*</b>	<b>Sign Type P-2 254 mm X 914 mm</b>				2	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-1	8+556.000	RT			0.23	D10-3
SS-11	11+672.000	RT			0.23	D10-3
SS-17	13+286.000	RT			0.23	D10-3
SS-22	14+900.000	RT			0.23	D10-3
SS-6	10+059.000	RT			0.23	D10-3
					1.15	

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Item Number	Description				Use Qty	Unit
<b>02891028*</b>	<b>Sign Type P-1 914 mm X 1219 mm</b>				<b>6</b>	<b>m2</b>
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-18	13+771.000	RT			1.11	R2-5a "REDUCED SPEED AHEAD"
SS-19	14+015.000	RT			1.11	R2-5b "REDUCED SPEED 40"
SS-2	8+816.000	RT			1.11	R2-1 "SPEED LIMIT 60"
SS-20	14+250.000	LT			1.11	R2-1 "SPEED LIMIT 60"
SS-20	14+259.000	RT			1.11	R2-1 "SPEED LIMIT 40"
					<hr/> 5.55	
<b>02891029*</b>	<b>Sign Type P-1 1219 mm X 610 mm</b>				<b>3</b>	<b>m2</b>
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-17	13+405.000	RT			0.74	W1-7
SS-4	9+420.000	RT			0.74	W1-7
SS-7	10+270.000	RT			0.74	W1-7
					<hr/> 2.22	
<b>02891030*</b>	<b>Sign Type P-1 1219 X 229 mm</b>				<b>1</b>	<b>m2</b>
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-4	9+375.000	RT			0.28	R15-1
					<hr/> 0.28	
<b>02891031*</b>	<b>Sign Type P-1 610 mm X 1219 mm</b>				<b>2</b>	<b>m2</b>
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-22		LT			0.74	S5-1 MOUNT ON POLE
SS-22	14+768.000	RT			0.74	S5-1 MOUNT ON POLE
					<hr/> 1.48	
<b>02891032*</b>	<b>Sign Type P-1 1500 mm X 900 mm</b>				<b>3</b>	<b>m2</b>
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-22		LT			1.35	OVERHEAD SCHOOL SIGN
SS-22	14+767.000	5.4 RT			1.35	OVERHEAD SCHOOL SIGN
					<hr/> 2.7	

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Item Number	Description				Use Qty	Unit
<b>02891033*</b>	<b>Sign Type P-2 5334 mm X 2896 mm</b>				16	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-2	8+727.000	LT			15.45	DIRECTIONAL SIGN
					15.45	
<b>02891034*</b>	<b>Sign Type P-2 2438 mm X 1372 mm</b>				4	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-2	8+761.000	RT			3.34	DISTANCE SIGN
					3.34	
<b>02891035*</b>	<b>Sign Type P-2 2591 mm X 1067 mm</b>				3	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-3	9+128.000	RT			2.76	DISTANCE SIGN
					2.76	
<b>02891036*</b>	<b>Sign Type A-2 1225 mm X 483 mm</b>				1	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-4	9+435.000	LT			0.59	D3 "OLD WELLINGTON RD"
					0.59	
<b>02891037*</b>	<b>Sign Type A-2 1067 mm X 457 mm</b>				1	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-7	10+282.000	LT			0.49	D3 "2000 EAST"
					0.49	
<b>02891038*</b>	<b>Sign Type A-2 1219 mm X 457 mm</b>				1	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-17	13+391.000	LT			0.56	D3 "3540 SOUTH"
					0.56	

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Item Number	Description				Use Qty	Unit
<b>02891039*</b>	<b>Sign Type P-2 1829 mm X 610 mm</b>				2	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-19	13+801.000	RT			1.12	D2-1 "WELLINGTON"
					1.12	
<b>02891040*</b>	<b>Sign Type P-1 3658 mm X 1981 mm</b>				15	m2
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SR-6	MP 173.4	EB			7.25	Advance Construction Warning Sign
SR-6	MP 299.5	WE			7.25	Advance Construction Warning Sign
					14.5	
<b>02891041*</b>	<b>Relocate Overhead Sign Structure</b>				1	Lump
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SS-3	9+064.000	10 LT	9+064	LT	1.0	
					1.0	

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**50 - SIGNALS**

**Alt Group: 0    Alt #: 0**

Item Number	Description				Use Qty	Unit
<b>028920015</b>	<b>Signal Power Source</b>				1	Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SG-1					1.0	Overhead School Flasher Power
					<hr/> 1.0	
<b>028920020</b>	<b>Installation of State Furnished Material</b>				1	Lump
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment
SG-3					1.0	
					<hr/> 1.0	

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**60 - LIGHTING**

**Alt Group: 0    Alt #: 0**

Item Number		Description				Use Qty		Unit
<b>165250015</b>		<b>Lighting Power Source</b>				1		Each
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment		
LT-1	9+438 +/-	RT			1.0	Old Wellington Road		
					1.0			
<b>16525001D</b>		<b>Highway Lighting System Old Wellington Road</b>				1		Lump
Line/Sheet	From Station	From Offset	To Station	To Offset	Qty	Comment		
LT-1					1.0	Old Wellington Road intersection		
					1.0			



Section	Material Type or Type of Construction	Testing Method/ Acceptance Documentation	Testing Frequency	Point of Acceptance	Required Action for out of Specification Material
<p><b>02746</b></p> <p><b>(Change 1, Sept 12, 2000)</b></p>	Hydrated Lime	<p>Suppliers must be pre-qualified by The Materials Division through the Quality Management Plan: Hydrated Lime. Select from Materials Division list of pre-qualified sources.</p> <p>Test Report</p>	<p>One per project issued by central lab based on tests performed prior to shipment</p>	<p>Prequalified Source</p> <p>Central Lab</p>	Rejection of product and possible removal from prequalified source list.
<p><b>Related Items:</b></p> <p><b>02746</b></p>	Hydrated Lime for Asphalt Mixture				

<b>Section</b>	<b>Material Type or Type of Construction</b>	<b>Testing Method/ Acceptance Documentation</b>	<b>Testing Frequency</b>	<b>Point of Acceptance</b>	<b>Required Action for out of Specification Material</b>
<b>05120</b>  <b>(Change 1, Sept 12, 2000)</b>	Structural Steel Structural Metals High Tensile Strength Nuts, Bolts, and Washers Load Indicator Washers	Test Report	Issued by Central Lab based on tests performed prior to shipment. A test report will accompany the shipment. All pretested material will be tagged with an orange UDOT sticker.	Manufacturer's Plant or Central Lab	Rejection
		Visual Inspection	Each Shipment	Project Site	Rejection
<b>05822</b>          <b>Related Items: 05120</b>	Expansion Bearing          Structural Steel	Test Report	Issued by Central Lab based on tests performed prior to shipment. A test report will accompany the shipment. All pretested material will be tagged with an orange UDOT sticker.	Manufacturer's Plant or Central Lab	Rejection



Section	Material Type or Type of Construction	Testing Method/ Acceptance Documentation	Testing Frequency	Point of Acceptance	Required Action for out of Specification Material
<b>03055</b> <b>(Change 2,</b> <b>Feb 13, 2001)</b>	Portland Cement Concrete (continued)	Sieve Analysis - Coarse and Fine Aggregate AASHTO T-11 and T-27	Perform one test per stockpile per week in advance of placement. In addition, one test per stockpile prior to placements greater than 75 m <sup>3</sup> .	Stockpile	Rework or replace stockpile.
		Slump Test AASHTO T-119	At the start up and after each failed batch, test every batch until two consecutive batches pass. Then take one test per 38 m <sup>3</sup> .	Project Site	Another slump test is taken immediately. If the second slump test fails, the batch is rejected. If the second slump test meets specification, take a third slump test. The batch is then accepted or rejected based on the results of the third test.
		Air Test AASHTO T-152	At the start up and after each failed batch, test every batch until two consecutive batches pass. Then take one test per 38 m <sup>3</sup> .	Project Site	Another air test is taken immediately. If the second air test fails, the batch is rejected. If the second air test meets specification, take a third air test. The batch is then accepted or rejected based on the results of the third test.
		Strength Test AASHTO T-22 and T-23	A minimum of one compressive strength test, consisting of one set of three cylinders, will be taken for each 38 m <sup>3</sup> , or fraction thereof. If placement is less than 6 m <sup>3</sup> , proceed as directed.	Project Site	Appropriate price reduction or removal and replacement with specification material.

<b>Section</b>	<b>Material Type or Type of Construction</b>	<b>Testing Method/ Acceptance Documentation</b>	<b>Testing Frequency</b>	<b>Point of Acceptance</b>	<b>Required Action for out of Specification Material</b>
<b>02455</b>	Driving Piles	Certified mill test report and test report.	Issued by Central Lab based on tests performed prior to shipment. A test report will accompany the shipment. All pretested material will be tagged with an orange UDOT sticker.	Manufacturer's Plant or Central Lab	Rejection
<b>Related Items</b> <b>03055</b> <b>03211</b>	Concrete Reinforcing Steel				
<b>02466</b> <b>Related Items</b> <b>03055</b> <b>03211</b>	Drilled Caisson  Concrete Reinforcing Steel				

\*Performed or approved by Region Lab    \*\* Performed by Contractor and reviewed by Engineer

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Section	Material Type or Type of Construction	Testing Method/ Acceptance Documentation	Testing Frequency	Point of Acceptance	Required Action for out of Specification Material
<b>02610</b> <b>(Change 3, May 8, 2001)</b>	Pipe Culverts	Test Report	Issued by Central Lab (Asphalt/Chemistry Lab) based on tests performed prior to shipment. A test report will be supplied prior to shipment.	Central Lab (Asphalt/Chemistry Lab)	Rejection
	Asphalt Coating				
		Visual Inspection	Each Shipment	Project Site	Rejection
	Corrugated Pipe Culverts and Pipe Arch Culverts	Manufacturer's Certificate of Compliance	Each Shipment	Project Site	Rejection
		Visual Inspection	Each Shipment	Project Site	Rejection
	Smooth-lined Pipe Culverts and pipe Arch Culverts Excluding Concrete Pipe	Manufacturer's Certificate of Compliance	Each Shipment	Project Site	Rejection
		Visual Inspection	Each Shipment	Project Site	Rejection
	Aluminized Pipe	Manufacturer's Certificate of Compliance	Each Shipment	Project Site	Rejection
		Visual Inspection	Each Shipment	Project Site	Rejection

\*Performed or approved by Region Lab    \*\* Performed by Contractor and reviewed by Engineer

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Section	Material Type or Type of Construction	Testing Method/ Acceptance Documentation	Testing Frequency	Point of Acceptance	Required Action for out of Specification Material
02610 (Change 3, May 8, 2001)	Pipe Culverts (continued)				
	Reinforced, Non-reinforced, and Elliptical Reinforced Concrete Pipe	Manufacturer's Certificate of Compliance. Attach Quality Control (QC) test report for each production run or lot of pipe represented. The QC test report must include: Load bearing (D-load), compressive strength, permeability and visual inspection pass/fail test results for each production run or lot represented.	Each Shipment	Project Site	Rejection
	Concrete	Visual Inspection  Per Section 03055 except as follows: Mix design (trial batches) must be submitted and approved by the Region Lab each new calendar year.	Each Shipment	Project Site Manufacturer's Plant or Central Lab	Rejection

\*Performed or approved by Region Lab \*\* Performed by Contractor and reviewed by Engineer

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Section	Material Type or Type of Construction	Testing Method/ Acceptance Documentation	Testing Frequency	Point of Acceptance	Required Action for out of Specification Material
02610 (Change 3, May 8, 2001)	Pipe Culverts (continued)				
	Structural Plate Pipe and Pipe Arch Culverts	Test Report	Issued by Central Lab based on tests performed prior to shipment. A test report will accompany the shipment. All pretested material will be tagged with an orange UDOT sticker.	Manufacturer's Plant or Central Lab	Rejection
		Visual Inspection	Each Shipment	Project Site	Rejection
02611	Diversion Box Gate and Frame	Manufacturer's Certificate of Compliance	Each Shipment	Project Site	Rejection

\*Performed or approved by Region Lab \*\* Performed by Contractor and reviewed by Engineer

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## 509 Asphalt Binder Quality Management System

### 509.1 Purpose

- 509.1.1 The Asphalt Binder Quality Management System (ABQMS) provides the Utah Department of Transportation with a quality management program for Performance Graded Asphalt Binders (PGAB) by establishing qualified sources of these materials and verifying the compliance of materials shipped from these sources to paving projects with specification requirements.

The ABQMS is comprised of a Standard Practice for Certifying Suppliers of Performance Graded Asphalt Binders, a contractor's Field Quality Control of PGAB program, a PGAB Asphalt Binder Quality Assurance Plan, and a method of addressing non-specification PGAB delivered to paving projects.

- 509.1.2 All asphalt binder producers and/ or suppliers to UDOT paving projects must be registered by UDOT under the **Standard Practice for Certifying Suppliers of Performance Graded Asphalt Binders** as outlined under **Section 509.2**.
- 509.1.3 The contractor will be responsible for the **Field Quality Control of PGAB** when the binder is delivered to the mix plant, as outlined under **Section 509.3**.
- 509.1.4 UDOT will accept asphalt binder under its **Performance Graded Asphalt Binder Quality Assurance Plan** as outlined under **Section 509.4**.
- 509.1.5 Non-specification PGAB delivered to paving projects will be addressed by the **Calculation and Application of Price Reductions for Non-Specification PGAB** section as outlined under **Sections 509.5 and 509.6**.

### 509.2 Standard Practice for Certifying Suppliers of Performance Graded Asphalt Binders.

### 509.2.1 Scope

- 509.2.1.1 This standard specifies requirements and procedures for a certification system that is applicable to all suppliers of performance graded asphalt binders (PGAB). The requirements and procedures cover materials manufactured at refineries and/or materials.

- 509.2.1.2 *This standard may involve hazardous materials, operations, and equipment. It does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

### 509.2.2 Referenced Documents

- 509.2.2.1 AASHTO Standards:
- MP1 Specifications for Performance Graded Asphalt Binder
  - PP6 Practice for Grading or Verifying the Performance Grade of an Asphalt Binder
  - T40 Sampling Bituminous Materials
- 509.2.2.2 ASTM Standards:
- D8 Terminology Relating to Materials for Roads and Pavements
  - D5801 Toughness and Tenacity Testing Method
  - D3665 Practice for Random Sampling of Construction Materials

## 509.2.3 Terminology

- 509.2.3.1 *Asphalt Binder*- An asphalt based cementitious material that is produced from petroleum residue either with or without the addition of non-particulate organic modifiers to quality and consistency for direct use in the manufacture of bituminous pavements.
- 509.2.3.2 *ASC*- Approved Supplier Certification
- 509.2.3.3 *PGAB*- Performance Graded Asphalt Binder
- 509.2.3.4 *DSR*- Dynamic Shear Rheometer
- 509.2.3.5 *BBR*- Bending Beam Rheometer
- 509.2.3.6 *Supplier*- A supplier is defined as an individual or an entity who performs the final production, blending, or modification which alters the properties of the PGAB used in the MP1 specification. A supplier could be a refinery, a terminal, or a Hot-Mix Asphalt (HMA) producer. If there is no further alteration of the PGAB after its initial production, the refinery is the supplier and must provide the certification. If there is any grade modification of the PGAB at the terminal, the terminal becomes the supplier and must provide the certification.

**NOTE 1- Various refining techniques can produce asphalts of equivalent -grade. These asphalts may be incompatible with each other. Hot-mix producers should consider compatibility before combining different asphalts and/or asphalts from different sources. If different asphalts and/or asphalts from different sources are blended by the user, they become the responsibility of the Hot-mix producer.**

- 509.2.3.7 *Agency*- The Utah Department of Transportation. UDOT's Asphalt Laboratory Engineer will be responsible for the certification of PGAB suppliers and for the final acceptance of the PGAB.
- 509.2.3.8 *Specification Compliance Testing*- Complete testing according to the AASHTO-MP1 specification requirements. The procedure for verification of grade as described in AASHTO PP6 shall be followed.
- 509.2.3.9 *QC Testing*- Quality Control testing could be a subset of the MP1 testing that the supplier will select and describe in his Quality Control Plan. The supplier QC plan will have to be approved by the agency or its authorized representative.

**NOTE 2- Definitions for various other terms common to asphalt binders can be found in ASTM D8.**

## 509.2.4 Significance and Use

- 509.2.4.1 This standard specifies procedures for minimizing disruption of PGAB shipments caused by testing requirements. This is accomplished by a certification system with quality control and specification compliance tests performed by the supplier on samples obtained prior to shipment.
- 509.2.4.2 The number of grades available under MP1 may require construction of additional storage facilities to comply with "sample and hold while testing" procedures.
- 509.2.4.3 This standard provides information and guidelines on the following:
- 509.2.4.3.1 General requirements that the supplier must satisfy prior to achieving approved supplier



- 509.2.4.3.2 status,  
Minimum requirements that must be included in a supplier's quality control plan,
- 509.2.4.3.3 General requirements that the agency must satisfy prior to certification,
- 509.2.4.3.4 Procedural requirements for shipment of PGABs under an ASC system,
- 509.2.4.3.5 Procedural requirements for agency monitoring of an ASC system at the shipping facility.

509.2.5 **Sampling** - All test samples required by this standard shall be obtained in accordance with AASHTO T 40 and ASTM D3665. The use of stratified random sampling procedure is important for the establishment of a valid certification program.

#### 509.2.6 **Testing Requirements**

- 509.2.6.1 All certification testing required for this standard shall be performed by a laboratory holding current inspection and accreditation certificate from AASHTO Materials Reference Laboratory (AMRL). For suppliers with multiple laboratories, satellite laboratories may be inspected by the supplier's primary AMRL inspected and accredited laboratory staff. The satellite laboratory(ies) must, however, participate in the AMRL Sample Proficiency Testing Program. The laboratory shall, at a minimum, be equipped with one Bending Beam Rheometer, one Dynamic Shear Rheometer, one Pressure Aging Vessel, one Brookfield Viscometer with Thermocell, one Rolling Thin Film Oven, and one Direct Tension Testing Device.

**NOTE 3-** Have primary laboratory facilities (test methods and equipment) regularly inspected by AASHTO Materials Reference Laboratory (AMRL). A copy of the AMRL report on the lab inspection shall be provided with the testing results, accompanied by documentation of resolution of any discrepancies in the AMRL report. Cost of this inspection shall be borne by the source of data. Satellite laboratories may be inspected by the sources primary AMRL inspected and accredited laboratory staff. A copy of the source report of the satellite laboratory inspection shall be provided with the test report.

#### 509.2.7 **Supplier Requirements**

- 509.2.7.1 The supplier shall submit a written request to the agency for authorization to ship PGABs under the ASC system and shall list the grades to which the request applies.
- 509.2.7.2 The agency (or its representative) shall have access at all times to the supplier's production/shipping facility, to inspect the facility, to observe the supplier's quality control procedures, to obtain samples, and to perform tests.
- 509.2.7.3 The supplier shall submit to the agency, for approval, a complete quality control (QC) plan which complies with the requirements of **Section 509.2.8**
- 509.2.7.4 The supplier shall follow the procedures set forth in the approved QC plan.
- 509.2.7.5 The supplier shall establish and maintain a daily record of all tests required on each grade included in the written request prepared to satisfy the requirements of **Section 509.2.7.1**. This record, if requested, shall be made available to the agency. In addition, the supplier shall forward with the written request, a one liter sample of each grade of PGAB to the agency.

509.2.7.6 The supplier shall submit all reports required by this standard in a format approved by the agency.

509.2.7.7 The supplier shall have a satisfactory record of compliance with specifications.

**509.2.8 Supplier Quality Control (QC) Plan (Minimum Requirements)**

509.2.8.1 The supplier QC plan shall identify:

509.2.8.1.1 the type of facility (i.e., refinery, terminal, etc.)

509.2.8.1.2 the location of the facility,

509.2.8.1.3 the name(s), and telephone number(s) of the employee(s) responsible for quality control at the facility,

509.2.8.1.4 the Quality Control (QC) tests to be performed on each PGAB, and

509.2.8.1.5 the laboratory(ies) performing quality control tests on the binder(s) that are shipped.

509.2.8.2 The supplier QC plan shall include a declaration stating that if a test result indicates non compliance of any shipment with the purchase specifications, the supplier shall (1) immediately notify the agency of the shipment in question, (2) identify the material, (3) cease additional shipment until material is brought back to specification, (4) notify the agency when shipment shall resume, (5) implement any mutually agreed-upon procedures for the disposition of the non compliance material.

509.2.8.3 The supplier QC plan shall describe protocols and frequency for initial testing, QC testing, and specification compliance testing.

- 509.2.8.3.1 Initial Testing- For each binder grade to be supplied, specification compliance testing (complete AASHTO MP1 testing) shall be performed for at least three consecutive lots. The lot size will be agreed to by the supplier and the agency. A lot is a fixed batch of material. The agency must approve any change to lot sizes.

**NOTE 4- In a batch operation used to manufacture the binder, a tank may be defined as a lot. The lot size would be the amount of material batched into the tank (e.g. 100 tons). Do not produce modified binders at the hot-mix production site. Modified binders shall be produced at a refinery or terminal.**

- 509.2.8.3.2 Reduced test frequency for specification compliance- If approved by the agency, the frequency of testing for specification compliance can be reduced to every other lot if the individual AASHTO MP1 and ASTM D5801 test result for every sample of the initial testing meets the following compliance criteria:

Original DSR,  $G^*/\sin\delta$  \$1.22 kPa

Original DSR,  $G^*$  \$ 1.56 kPa

Phase angle (rule of 92) # 719

Phase angle (rule of 98) # 689

Original DSR,  $G^*/\sin\delta$  \$1.65 kPa

RTFO DSR,  $G^*/\sin\delta$  \$ 2.68 kPa

PAV DSR,  $G^*(\sin\delta)$  # 3.9 Mpa

S(60sec.)BBR # 250 Mpa

m-value BBR \$ 0.312

Failure Strain Direct Tension \$2.0%

Failure Stress Direct Tension \$5.2 Mpa

Toughness, \$100 lb-in

Tenacity, \$ 70 lb-in

**NOTE 5- The compliance criterion for Failure Stress and Strain in the Direct Tension Test is for those PG Grades having an algebraic difference between the high and low design grade of 92 9C or greater.  $G^*$  denotes the complex modulus.**

**NOTE 6 - The compliance criterion for toughness and tenacity is for grades having an algebraic difference of 929C or greater between the high and low temperature.**

With the approval of the agency, the frequency of testing can be further reduced as long as the individual test results continue to meet the above compliance criteria.

If any of the criteria is not met, or if testing is resumed after occurrence of a non-compliance incident or after a plant shut-down, every lot will continue to be tested for the individual AASHTO MP1 or ASTM D5801 property until three consecutive lots meet the above compliance criteria.

- 509.2.8.3.3 Minimum frequency - Complete AASHTO MP 1 Specification compliance testing including ASTM D5801 shall be run at least once a month for each binder grade produced during that month. This minimum frequency is independent of the test results specified in **Section 509.2.8.3.2**

- 509.2.8.3.4 Quality Control testing guidelines for manufacturer- At least two AASHTO MP1 test shall be used for monitoring high and low temperature properties of the binder. Manufacturers may use Non-AASHTO MP1 tests approved by the agency. The use of non-AASHTO MP1 tests does not preclude the need to meet AASHTO MP1 specifications or to run complete AASHTO MP1 tests according to the guidelines in **Section 509.2.8.3**

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509.2.8.4	The QC plan shall include a statement that the supplier, if requested by the agency, shall prepare and submit quarterly summary reports of all quality control and specification compliance tests performed during that period.	
509.2.8.5	In order to prevent contamination of shipments, the supplier QC plan shall provide an outline of the procedure(s) to be followed for inspection of transport vehicles prior to loading. The procedure shall include an entry stating that the transport vehicle inspection report, signed by the responsible inspector, shall be maintained in the supplier's records and will be made available for review by the purchaser/agency upon request.	
509.2.9	<b>Agency Requirements</b>	
509.2.9.1	The agency shall review the QC and may visit the shipping site.	
509.2.9.2	The agency, upon receipt of the application for ASC status, shall review the application, and if acceptable, notify the supplier of its approval. The notification shall include a listing of the grades covered.	
509.2.9.3	The agency shall verify that the supplier's primary testing laboratory has current AASHTO accreditation and participates in the AMRL proficiency sample testing ( <b>NOTE 3</b> )	
509.2.9.4	The agency shall authorize shipment of each listed performance graded binder under the ASC system only after all requirements of the ASC have been satisfied.	

<u>Quality Management Plan</u>		<u>Asphalt Binder</u>
		January 8, 2002
509.2.10	<b>Requirements for Shipping PGABs by an ASC Supplier</b>	
509.2.10.1	The supplier shall ship PGAB shipments covered by the certification as dictated by shipping schedules (i.e. at any time)	
509.2.10.2	Each shipment shall be accompanied by two copies of the shipment bill of lading which shall include (1) the name and location of the supplier, (2) the grade of the material, (3) the quantity of the material shipped, (4) the date of the shipment, (5) a statement certifying that the transport vehicle was presented by the carrier acceptable for the material shipped. Each shipment shall also be accompanied by a complete Material Safety Data Sheet (MSDS) as required by the Code of Federal Regulations.	
509.2.10.3	If the specification compliance test results do not conform to the PGAB specifications, the supplier shall remove the non conforming material from the shipping queue as outlined in <b>Section 509.2.8.2.</b>	
509.2.11	<b>Split Sample Testing</b>	
509.2.11.1	The agency may test split samples that are obtained at random from the Supplier's facility.	
	<b>NOTE 7- Split samples shall be obtained from the same general locations from which the Supplier's samples are taken.</b>	
509.2.11.2	The agency shall determine the frequency of split sample testing. At least one split sample shall be taken and tested every 60 days.	
509.2.11.3	If the split sample data and the Supplier test data are not within the following tolerances, an immediate investigation shall be conducted to determine the cause of the difference between the data:	

Original, RTFO, and PAV, DSR:	± 20%
Original DSR G*	± 20%
Original phase angle	\$ 2 9
s (60 sec), BBR:	± 10%
m-value, BBR:	± 0.015
Failure Strain, DT:	± 30%
Failure Stress, DT	± 20 %
Toughness	± 30%
Tenacity	± 30%

Unless available facts indicate otherwise, the investigation shall include a review of sampling and testing procedures of both supplier and agency.

#### 509.2.12 Report and Data Sheets

- 509.2.12.1 The supplier shall submit all reports in accordance with the procedure described in **Section 509.2.7.6**. The test results shall be reported in a format that can be easily understood by a technician with minimum training in performance graded binder testing. The system of unit used shall be clearly stated. If test results are presented in a tabular format, the units, where applicable, shall be stated either as part of a column heading or after the description of the physical parameter or after its numerical value. The supplier shall also furnish the raw test data in a floppy diskette either in an ASCII format or in any commonly used spreadsheet format upon request by the agency.

#### 509.2.13 Withdrawal of ASC Status

- 509.2.13.1 The agency may revoke or suspend ASC status under the following conditions:
- 509.2.13.1.1 The test data provided by the supplier to the agency does not meet the tolerances shown in Section 509.2.11.3 for three consecutive samples.

- 509.2.13.1.2 Supplier test data can not be verified repeatedly by the agency and the agency deems that it is due to negligence on the part of the supplier.
- 509.2.13.1.3 The supplier is not following the approved QC plan.
- 509.2.13.1.4 A visit by the agency's representative to the supplier's facility reveals significant quality control problems.

### 509.3 Field Quality Control of PGAB

- 509.3.1 The field quality control of PGAB will be the responsibility of the contractor. Prior to accepting deliveries of PGAB, the contractor will submit a PGAB Quality Control Plan including minimum key elements as listed in Section **509.3.4** . This plan will be included within the contractor's quality control plan for asphalt concrete or and addendum to it. If the contractor is not using a quality control plan for asphalt concrete, the PGAB quality control plan will be a separate document which is an extension of the project contract. The quality control plan will be submitted at least 15 days prior to commencing paving operations. The purpose of the quality control plan is to describe proper handling techniques for the PGAB to ensure its consistency through transportation and storage operations. The quality control plan will be reviewed by the Project Engineer and paving operations will not begin before the plan has been accepted.
- 509.3.2 The contents of the PGAB quality control plan shall be contract specific and current to the production and mixture operations. Prior to executing any change to PGAB production, the quality control plan will be revised by written addendum to incorporate the change. Acceptance of the addendum will be required before the change is made to PGAB production. Failure to keep the quality control plan current may affect subsequent decisions, such as those made during failed material reviews and/or the appeal process.

- 509.3.3 The supplier that manufactures the binder and assigns the designated PGAB must be on UDOT's Approved Supplier Certification System (ASCS).
- 509.3.4 **Minimum General Requirements of the Contractor's PGAB Quality Control Plan**
  - 509.3.4.1 The quality control plan will have a signature page. The contractor and any subcontractor responsible for handling the PGAB will sign and date such page when the plan is submitted for acceptance.
  - 509.3.4.2 The responsibilities of each party having a role in the quality control plan shall be identified.
  - 509.3.4.3 The commitment towards communicating with UDOT personnel will be stated. Specific circumstances and arrangements for communication shall be identified as appropriate throughout the plan.
  - 509.3.4.4 The anticipated mode of PGAB delivery will be outlined. The process of truck inspection prior to filling will be described to avoid binder contamination. Any sampling and testing to be conducted after delivery will be fully described.
  - 509.3.4.5 The capacity(ies) and methods of agitation within the storage tank(s) will be described. Based on the type of asphalt used to produce the specific grade (i.e., blended asphalt, modified asphalt, etc.), any potential limitations of the PGAB relative to prolonged storage, exposure to prolonged and/or elevated heating, susceptibility to stratification and/or separation, etc. will be fully described.
  - 509.3.4.6 Any special handling or storage requirements of the PGAB will be fully described. Any on-site sampling and testing will be outlined as to location, testing, and control limits.

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509.3.4.7	The plan will identify procedures for identifying the PGAB contained in each storage tank.
509.3.4.8	The procedure to continually monitor and record the tank(s) temperature(s) will be described.
509.3.4.9	The procedure to change from one PGAB grade to another grade within a tank will be described.

#### **509.4 Performance Graded Asphalt Binder Quality Assurance Plan**

##### **509.4.1 UDOT Sampling**

509.4.1.1	Each day that asphalt concrete is being produced, a binder sample, comprised of three (3) individual one (1) quart containers will be taken at random times from the mix plant's asphalt tank injection line. Two of these containers will be for UDOT's use and the other container will be given to the contractor. The contractor will retain these samples until project completion. Each sample will be taken from the sampling valve after sufficient amount of binder is run out and wasted, in order to clear any residual asphalt and/or solvent which builds up in the sampling valve. Each sample will be taken at random times during the production day as determined by UDOT.
509.4.1.2	If mix plant operations are suspended for more than 48 hours, the next binder sample will not be taken randomly; instead, this binder sample will be taken at the resumption of operations.

<u>Quality Management Plan</u>	<u>Asphalt Binder</u>
	January 8, 2002
509.4.1.3	<b>Lots and Sublots</b>
509.4.1.3.1	Each day's production shall constitute a binder subplot (represented by one random sample) and each week's production shall constitute a binder lot. A lot, however, will not exceed eight (8) sublots. thus the tonnage of binder may vary from subplot to subplot and from lot to lot. If two (2) production sublots or less are accumulated within a production week, this will not be considered a binder lot. These sublots will be included within the next production week. Thus, a binder lot shall consist of at least three (3) sublots.
509.4.1.3.2	A binder subplot shall include only one grade. Thus, if the grade is changed within a production day, that day will be divided into sublots representing each grade used and one binder sample will be taken for each grade used.
509.4.1.3.3	At the end of the project, the final binder lot may include less than three sublots.
509.4.1.3.4	All subplot samples will be sampled and/or witnessed by a representative of the contractor and UDOT. A sample identification form will be signed by both parties, signifying each sample's acceptability. UDOT will take control of it's portion of the sample once obtained. The contractor will take control of and retain it's portion of the sample as per Section 509.4.1.1.

**509.4.2 UDOT Testing**

509.4.2.1 UDOT's AASHTO accredited laboratory will randomly choose one (1) subplot from each lot, and either completely or partially test the selected sample at its discretion. If the tested grade complies with the specified grade, the binder lot will be accepted. If the grade does not comply with the specified grade, the Resident Engineer will be notified of the failure by means of a test report. This test report will also be sent by registered mail to the Binder Supplier. A price reduction will be assessed or the material will be removed and replaced as specified in Section 509.5.

**509.4.2.2 Guidelines for Appeal Procedure**

509.4.2.2.1 If the contractor wishes to appeal the test results of a lot, the contractor shall submit a written appeal request within 21 calendar days of the reported test results to the Supplier (as per Section 509.4.2.1). The appeal must state the grounds or the circumstances of the appeal and if the test results are in-question, the appeal must be accompanied by all of the quality control test results which represents the lot in question and a complete binder test series, on the contractor's retained and disputed sub-lot sample which was taken during the lot in question. ( see Section 509.4.1.1) This sample must be tested by an AASHTO accredited laboratory, independent from the supplier, and mutually acceptable to the contractor and UDOT. The contractor will be responsible for testing costs. The contractor will be held responsible for all penalties assessed if the contractor's part of the sample can not be furnished. The binder supplier is not to be held liable in this case.

509.4.2.2.2 The appeal request and the submitted test results will be reviewed by UDOT. If the appeal has merit and/or the contractor's binder test results from the mix plant indicate a significant difference between UDOT's binder test results, the appeal will be accepted by UDOT.

509.4.2.2.3 When an appeal is accepted, the agency will conduct additional binder tests on two(2) additional subplot samples from the lot in question. The two additional subplot samples will be randomly chosen and will be tested for those test parameters which significantly differ between UDOT and the contractor. Any invalid test results will be disregarded. The initial and additional test results for each test will be averaged and the average value for each test will be considered the final lot value. Thus, the final lot values will be used to determine compliance or non-compliance.. Compliance or non-compliance will be acted upon as outlined in **Section 509.5**. The contractor will be notified in writing of the additional test results, the final lot values, and the appeal conclusions.

509.4.2.2.4 If the appeal is not accepted, UDOT will submit a denial letter to the contractor, stating the grounds for the denial.



- 509.4.2.2.5 The contractor may request referee testing on final assessed price reductions. The contractor will agree to have the available back-up subplot samples retained by UDOT, from the lot in question, tested by an AASHTO accredited laboratory mutually acceptable to the contractor and UDOT. All specification parameters in contention will be tested on each subplot sample. The contractor will agree to bear the costs of testing each subplot sample if the referee tests verify non specification compliance on any one subplot sample. UDOT will bear the costs of testing if all sub-lot samples are in compliance to the specifications. The AASHTO accredited laboratory will report the results to UDOT. The results of the tests will be binding to both parties. These test results for the test parameter(s) in contention will be averaged. This average value(s) will be considered the final lot value. This final lot value(s) will be used to determine compliance/non-compliance to the specifications as outlined in Section 509.5.

## 509.5 Calculation and Application of Price Reductions for Non-Specification PGAB

- 509.5.1 Table 1. Compliance and rejection limits for price rejection calculations for PGAB.

Property	Compliance Limit for Price Reduction of 0 %	Rejection Limit Price Reduction 25 %
G*/sinδ of the original PGAB at high grade temp, (kPa)	0.84 Min.	0.70 Min.
G* of the original PGAB at high grade Temperature, (kPa)	1.20 Min.	1.06 Min.
δ (phase angle) of the original PGAB at high grade Temp. (Rule of 92), degrees	76 Max.	78 Max
δ (phase angle) of the original PGAB at high grade Temp. (Rule of 98), degrees	73 Max	75 Max
G*/Sinδ or RTFO Residue at high temperature, (kPa)	1.87 Min.	1.53 Min.
Stiffness of the PAV residue at Low Grade temp. + 10 °C, (Mpa)	311 Max.	355 Max.
Slope (m-value) of the Creep Curve at Low Grade temp. +10 °C	0.295 Min.	0.266 Min.

Failure Strain of PAV Residue in Direct Tension at Low Grade Temp. + 10 °C <sup>1</sup> , %	1.4 Min.	1.2 Min.
Failure Stress of PAV Residue in Direct Tension at Low Grade Temp. + 10 °C <sup>1</sup> , Mpa	4.0 Min	3.5 Min
Toughness of original PGAB, lb.in. <sup>1</sup>	68 Min.	49 Min.
Tenacity of original PGAB, lb in. <sup>1</sup>	45 Min.	32 Min.

<sup>1</sup> Use only for binders whose high and low temperature algebraic difference is 92 °C or greater

509.5.2 If the value of the measured properties meet the compliance limit of table 1, the price reduction is 0% for each individual test property. The price reduction for each individual property will be 25% at the rejection limit. If any measured property is outside the rejection limit, i.e., greater than 25%, the mixture will be rejected. For each property whose value lies between the compliance limit and the rejection limit, the price reduction will be calculated assuming a linear variation between 0 and 25. For example, if the measured m value is 0.270, the per cent price reduction for the m-value will be calculated as follows:

$$\% \text{Price reduction for m-value} = 25 \times \frac{(0.295 - 0.270)}{(0.295 - 0.266)} = 21.55$$

509.5.3 For a particular sample having more than one parameter out of specification, the composite price reduction for the PGAB will be calculated by summing the reduction of each individual property calculated as described above.

509.5.4 The PGAB shall be accepted with reduced composite price reduction if none of the critical properties are outside the rejection limit and the composite price reduction is 25% or less. The material will be rejected if one or more of the measured properties fall outside the rejection limit or if the composite price reduction is more than 25%.

## 509.6 Basis of Payment

509.6.1 The amount of price reduction made to the contractor will be based on the hot mix asphalt price quoted in the contractor's bid. If the price per ton is un-balanced then the applicable previous year average bid price per ton will be used.

$$\text{Price Reduction} = \text{Line item price for HMA} \times \text{PR}_{\text{PGAB}} \times \text{Number of tons HMA}$$